TEXT SEARCH

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=> d his l118

     (FILE 'PASCAL, RAPRA, JAPIO' ENTERED AT 15:17:03 ON 15 SEP 2010)
               SAV L117 CAI044MULTI/A

     FILE 'HCAPLUS' ENTERED AT 15:21:38 ON 15 SEP 2010
L118          11 S L105 AND (L115 OR L116)

=> d que l118
L3        267045 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  DENDRIMERS+MAX
                 /CT
L4        267045 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  DENDRIMERS+ALL
                 /CT
L5          5923 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  DENDRIMERS/CT

L6           441 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  ("HUANG,
                 BAOHUA"/AU OR "PULGAM, VEERA REDDY"/AU OR "SWANSON,
                 DOUGLAS R."/AU OR "TOMALIA, DONALD A."/AU)
L7               QUE  SPE=ON  ABB=ON  PLU=ON  HUANG B?/AU
L8               QUE  SPE=ON  ABB=ON  PLU=ON  PULGAM V?/AU
L9               QUE  SPE=ON  ABB=ON  PLU=ON  SWANSON D?/AU
L14          497 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  ("CHAUHAN,
                 ABHAY SINGH"/AU OR "DEMATTEI, CORDELL R."/AU OR
                 "HEINZELMANN, JOSEPH R."/AU OR "HUANG, BAOHUA"/AU OR
                 "PULGAM, VERRA REDDY"/AU OR "REYNA, LORI A."/AU OR
                 "SVENSON, SONKE"/AU OR "SWANSON, DOUGLAS R."/AU OR
                 "TOMALIA, DONALD A."/AU OR "ZHURAVEL, MICHAEL A."/AU)
L15          499 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  L6 OR L14
L28              QUE  SPE=ON  ABB=ON  PLU=ON  THEOR?/BI,ABEX OR MODELLIN
                 G?/BI,ABEX
L29              QUE  SPE=ON  ABB=ON  PLU=ON  ?DRENDR?/BI,ABEX OR STARBU
                 RST?/BI,ABEX OR STAR?/BI,ABEX(A)BURST?/BI,ABEX OR FRACT
                 AL?/BI,ABEX
L31              QUE  SPE=ON  ABB=ON  PLU=ON  CORESHELL? OR CORE?(A)SHEL
                 L?
L32              QUE  SPE=ON  ABB=ON  PLU=ON  (EQ OR EQUATION? OR FORMUL
                 A)
L33              QUE  SPE=ON  ABB=ON  PLU=ON  CORE OR SHELL OR INTERIOR
                 OR SURFACE RO EXTERIOR
L34              QUE  SPE=ON  ABB=ON  PLU=ON  CORE(2A)(MULTI? OR AMPLIF?
                 )
L35              QUE  SPE=ON  ABB=ON  PLU=ON  BRANCH?(2A)(MULTI? OR AMPL
                 IF?)
L36              QUE  SPE=ON  ABB=ON  PLU=ON  (EXTER? OR SURFACE)(2A)(MU
                 LTI? OR AMPLIF?)
L60              QUE  SPE=ON  ABB=ON  PLU=ON  ?DENDR? OR STAR? OR STARBU
                 RST? OR STAR?(A)BURST? OR FRACTAL? OR HYPERBRANCH? OR H
                 YPER?(A)BRANCH?
L61              QUE  SPE=ON  ABB=ON  PLU=ON  ARITH? OR MATH? OR EQUATIO
                 N? OR ALGORITHM? OR CALCULUS OR DIFFERENTIAL? OR INTEGR
                 AL? OR FUNC? OR DERIV?
L62       301289 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  L60 AND L61
L63              QUE  SPE=ON  ABB=ON  PLU=ON  THEOR? OR MODELLING?
L64        38241 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  L62 AND L63
L66           44 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  L64 AND
                 (L32(3A)(L31 OR (L33 OR L34 OR L35 OR L36)))
L67              QUE  SPE=ON  ABB=ON  PLU=ON  L32(3A)(L31 OR (L33 OR L34
                  OR L35 OR L36))
L68          137 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  L62 AND L67
L69           44 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  L68 AND L63
L70           44 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  L69 OR L66
L72        11373 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  L62 AND ((L3
                 OR L4 OR L5))
L73            3 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  L72 AND L67
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L74          811 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  (L63 OR
                 MODEL?)(3A)L31
L75           51 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  L74 AND L60
L76            6 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  L75 AND ((L3
                 OR L4 OR L5))
L77              QUE  SPE=ON  ABB=ON  PLU=ON  35/SC,SX
L78              QUE  SPE=ON  ABB=ON  PLU=ON  37/SC,SX
L79            7 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  L75 AND (L77
                 OR L76)
L80            7 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  L75 AND (L77
                 OR L78)
L81              QUE  SPE=ON  ABB=ON  PLU=ON  PEHAM OR TPEGE OR TMPTGE O
                 R PAMAM
L82          967 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  L72 AND L81
L83           42 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  L82 AND L32
L84              QUE  SPE=ON  ABB=ON  PLU=ON  EQUATION OR EQ
L85           33 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  L83 AND L84
L86         1462 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  ORNSTEIN(A)ZER
                 NIKE
L87              QUE  SPE=ON  ABB=ON  PLU=ON  DIFFERENTIAL OR INTEGRAL O
                 R DERIV?
L88          984 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  L86(3A)(L84
                 OR L87 OR L28 OR MODEL?)
L89           42 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  L88 AND (L60
                 OR HIGH?(3A)BRANCH?)
L90        41496 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  (L31 OR (L33
                 OR L34 OR L35 OR L36))(3A)(L84 OR L87 OR L28 OR
                 MODEL?)
L91         1028 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  L66 OR (L68
                 OR L69 OR L70) OR L73 OR (L74 OR L75 OR L76) OR L79 OR
                 L80 OR L83 OR L85 OR L89
L92          940 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  L90 AND L91
L93           25 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  L92 AND ((L3
                 OR L4 OR L5))
L94            7 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  L92 AND
                 ?DENDRI?
L95          180 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  L92 AND (L60
                 OR HIGH?(3A)BRANCH?)
L96           15 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  L95 AND
                 ?POLYM?
L97          275 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  L79 OR L80 OR
                 L83 OR L85 OR L89 OR (L93 OR L94 OR L95 OR L96)
L98            2 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  L97 AND ((L7
                 OR L8 OR L9) OR L15)
L99           20 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  L97 AND (L77
                 OR L78)
L100          34 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  L97 AND L29
L101          58 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  L96 OR (L98
                 OR L99 OR L100)
L102          33 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  L101 AND ((L3
                 OR L4 OR L5) OR DENDR?)
L103          22 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  L102 AND L84
L104           1 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  "D/D0 =
                 EXP[-B(R/Ξ)Δ]"
L105          22 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  L104 OR L103
L115             QUE  SPE=ON  ABB=ON  PLU=ON  PY=<2005 NOT P/DT
L116             QUE  SPE=ON  ABB=ON  PLU=ON  (PY=<2005 OR PRY=<2005 OR
                 AY=<2005 OR MY=<2005 OR REVIEW/DT) AND P/DT
L118          11 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  L105 AND
                 (L115 OR L116)


=> d his l117

     (FILE 'PASCAL, RAPRA, JAPIO' ENTERED AT 15:17:03 ON 15 SEP 2010)
L117          21 S L114 AND (L115 OR L116)
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=> d que l117
L28             QUE  SPE=ON  ABB=ON  PLU=ON  THEOR?/BI,ABEX OR MODELLIN
                G?/BI,ABEX
L31             QUE  SPE=ON  ABB=ON  PLU=ON  CORESHELL? OR CORE?(A)SHEL
                L?
L32             QUE  SPE=ON  ABB=ON  PLU=ON  (EQ OR EQUATION? OR FORMUL
                A)
L33             QUE  SPE=ON  ABB=ON  PLU=ON  CORE OR SHELL OR INTERIOR
                OR SURFACE RO EXTERIOR
L34             QUE  SPE=ON  ABB=ON  PLU=ON  CORE(2A)(MULTI? OR AMPLIF?
                )
L35             QUE  SPE=ON  ABB=ON  PLU=ON  BRANCH?(2A)(MULTI? OR AMPL
                IF?)
L36             QUE  SPE=ON  ABB=ON  PLU=ON  (EXTER? OR SURFACE)(2A)(MU
                LTI? OR AMPLIF?)
L60             QUE  SPE=ON  ABB=ON  PLU=ON  ?DENDR? OR STAR? OR STARBU
                RST? OR STAR?(A)BURST? OR FRACTAL? OR HYPERBRANCH? OR H
                YPER?(A)BRANCH?
L61             QUE  SPE=ON  ABB=ON  PLU=ON  ARITH? OR MATH? OR EQUATIO
                N? OR ALGOR!THM? OR CALCULUS OR DIFFERENTIAL? OR INTEGR
                AL? OR FUNC? OR DERIV?
L63             QUE  SPE=ON  ABB=ON  PLU=ON  THEOR? OR MODELLING?
L81             QUE  SPE=ON  ABB=ON  PLU=ON  PSHAM OR TPEGE OR TMPTGE O
                R PAMAM
L84             QUE  SPE=ON  ABB=ON  PLU=ON  EQUATION OR EQ
L86        1462 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  ORNSTEIN(A)ZER
                NIKE
L87             QUE  SPE=ON  ABB=ON  PLU=ON  DIFFERENTIAL OR INTEGRAL O
                R DERIV?
L88          984 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  L86(3A)(L84
                OR L87 OR L28 OR MODEL?)
L90        41496 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  (L31 OR (L33
                OR L34 OR L35 OR L36))(3A)(L84 OR L87 OR L28 OR
                MODEL?)
L106      169635 SEA L60 AND L61
L107          13 SEA L106 AND L88
L108         545 SEA L106 AND L90
L109          15 SEA L108 AND (L34 OR L35)
L110          28 SEA L107 OR L109
L111          28 SEA L110 AND (L60 OR HIGH?(3N) BRANCH?)
L112          28 SEA L111 AND ((L31 OR L32 OR L33 OR L34 OR L35 OR L36)
                OR L60 OR L61 OR MODEL? OR L63 OR L81 OR L84)
L113           9 SEA L111 AND ?DENDR?
L114          28 SEA L112 OR L113
L115            QUE  SPE=ON  ABB=ON  PLU=ON  PY=<2005 NOT P/DT
L116            QUE  SPE=ON  ABB=ON  PLU=ON  (PY=<2005 OR PRY=<2005 OR
                AY=<2005 OR MY=<2005 OR REVIEW/DT) AND P/DT
L117          21 SEA L114 AND (L115 OR L116)


=> d his l142

     (FILE 'WPIX' ENTERED AT 15:24:28 ON 15 SEP 2010)
L142          20 S L140 OR L141

=> d que l142
L6           441 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  ("HUANG,
                BAOHUA"/AU OR "PULGAM, VEERA REDDY"/AU OR "SWANSON,
                DOUGLAS R."/AU OR "TOMALIA, DONALD A."/AU)
L7              QUE  SPE=ON  ABB=ON  PLU=ON  HUANG B?/AU
L8              QUE  SPE=ON  ABB=ON  PLU=ON  PULGAM V?/AU
L9              QUE  SPE=ON  ABB=ON  PLU=ON  SWANSON D?/AU
L10             QUE  SPE=ON  ABB=ON  PLU=ON  TOMALIA D?/AU
L11             QUE  SPE=ON  ABB=ON  PLU=ON  L7 AND L8 AND L9 AND L10
L12             QUE  SPE=ON  ABB=ON  PLU=ON  L7 AND L10 AND L11
L13           6 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  L7 AND L8 AND
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                L9 AND L10
L14          497 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  ("CHAUHAN,
                 ABHAY SINGH"/AU OR "DEMATTEI, CORDELL R."/AU OR
                 "HEINZELMANN, JOSEPH R."/AU OR "HUANG, BAOHUA"/AU OR
                 "PULGAM, VERRA REDDY"/AU OR "REYNA, LORI A."/AU OR
                 "SVENSON, SONKE"/AU OR "SWANSON, DOUGLAS R."/AU OR
                 "TOMALIA, DONALD A."/AU OR "ZHURAVEL, MICHAEL A."/AU)
L15          499 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  L6 OR L14
L16            6 SEA FILE=WPIX SPE=ON  ABB=ON  PLU=ON  L7 AND L8 AND L9
                 AND L10
L17            6 SEA FILE=WPIX SPE=ON  ABB=ON  PLU=ON  L16 AND DENDR?/BI
                 ,ABEX
L18            1 SEA FILE=WPIX SPE=ON  ABB=ON  PLU=ON  US20070244296/PN

L19        11112 SEA FILE=WPIX SPE=ON  ABB=ON  PLU=ON  DENDR?/BI,ABEX
L20            1 SEA FILE=WPIX SPE=ON  ABB=ON  PLU=ON  L18 AND L19
L21            1 SEA FILE=WPIX SPE=ON  ABB=ON  PLU=ON  US20070298006/PN

L22            1 SEA FILE=WPIX SPE=ON  ABB=ON  PLU=ON  L21 AND L19
L23              QUE  SPE=ON  ABB=ON  PLU=ON  ARITH? OR MATH? OR EQUATIO
                 N? OR ALGOR!THM? OR CALCULUS OR DIFFERENTIAL? OR INTEGR
                 AL? OR FORMULA
L24              QUE  SPE=ON  ABB=ON  PLU=ON  POLYM?
L25            6 SEA FILE=WPIX SPE=ON  ABB=ON  PLU=ON  L17 AND (L23 OR
                 L24)
L26         2775 SEA FILE=WPIX SPE=ON  ABB=ON  PLU=ON  L19 AND (L23 OR
                 FRACT?/BI,ABEX)
L27              QUE  SPE=ON  ABB=ON  PLU=ON  ARITH?/BI,ABEX OR MATH?/BI
                 ,ABEX OR EQUATION?/BI,ABEX OR ALGOR!THM?/BI,ABEX OR CAL
                 CULUS/BI,ABEX OR DIFFERENTIAL?/BI,ABEX OR INTEGRAL?/BI,
                 ABEX OR FRACTAL?/BI,ABEX
L28              QUE  SPE=ON  ABB=ON  PLU=ON  THEOR?/BI,ABEX OR MODELLIN
                 G?/BI,ABEX
L29              QUE  SPE=ON  ABB=ON  PLU=ON  ?DRENDR?/BI,ABEX OR STARBU
                 RST?/BI,ABEX OR STAR?/BI,ABEX(A)BURST?/BI,ABEX OR FRACT
                 AL?/BI,ABEX
L30         1623 SEA FILE=WPIX SPE=ON  ABB=ON  PLU=ON  (L29 OR L19) AND
                 L27
L31              QUE  SPE=ON  ABB=ON  PLU=ON  CORESHELL? OR CORE?(A)SHEL
                 L?
L32              QUE  SPE=ON  ABB=ON  PLU=ON  (EQ OR EQUATION? OR FORMUL
                 A)
L33              QUE  SPE=ON  ABB=ON  PLU=ON  CORE OR SHELL OR INTERIOR
                 OR SURFACE RO EXTERIOR
L34              QUE  SPE=ON  ABB=ON  PLU=ON  CORE(2A)(MULTI? OR AMPLIF?
                 )
L35              QUE  SPE=ON  ABB=ON  PLU=ON  BRANCH?(2A)(MULTI? OR AMPL
                 IF?)
L36              QUE  SPE=ON  ABB=ON  PLU=ON  (EXTER? OR SURFACE)(2A)(MU
                 LTI? OR AMPLIF?)
L39          335 SEA FILE=WPIX SPE=ON  ABB=ON  PLU=ON  B04-C03E/MC
L40           26 SEA FILE=WPIX SPE=ON  ABB=ON  PLU=ON  C04-C03E/MC
L42           22 SEA FILE=WPIX SPE=ON  ABB=ON  PLU=ON  L39 AND L40
L43           18 SEA FILE=WPIX SPE=ON  ABB=ON  PLU=ON  L42 AND L19
L44          339 SEA FILE=WPIX SPE=ON  ABB=ON  PLU=ON  L39 OR L40
L45         1224 SEA FILE=WPIX SPE=ON  ABB=ON  PLU=ON  H0351/PLE
L46          127 SEA FILE=WPIX SPE=ON  ABB=ON  PLU=ON  L44 AND L45
L47           66 SEA FILE=WPIX SPE=ON  ABB=ON  PLU=ON  L46 AND L26
L48            5 SEA FILE=WPIX SPE=ON  ABB=ON  PLU=ON  L30 AND L31
L49            6 SEA FILE=WPIX SPE=ON  ABB=ON  PLU=ON  L30 AND L32(S)(L3
                 1 OR L33 OR (L34 OR L35 OR L36))
L50           59 SEA FILE=WPIX SPE=ON  ABB=ON  PLU=ON  L30 AND L28
L51            2 SEA FILE=WPIX SPE=ON  ABB=ON  PLU=ON  L50 AND L44
L52            3 SEA FILE=WPIX SPE=ON  ABB=ON  PLU=ON  L50 AND L45
L53            3 SEA FILE=WPIX SPE=ON  ABB=ON  PLU=ON  L51 OR L52
L54            6 SEA FILE=WPIX SPE=ON  ABB=ON  PLU=ON  L39 AND L40 AND
                 L45
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L55          42 SEA FILE=WPIX SPE=ON  ABB=ON  PLU=ON  L26 AND L28
L56          59 SEA FILE=WPIX SPE=ON  ABB=ON  PLU=ON  L30 AND L28
L57          86 SEA FILE=WPIX SPE=ON  ABB=ON  PLU=ON  L55 OR L56
L58          45 SEA FILE=WPIX SPE=ON  ABB=ON  PLU=ON  L57 AND ((L31 OR
                L32 OR L33 OR L34 OR L35 OR L36))
L59          13 SEA FILE=WPIX SPE=ON  ABB=ON  PLU=ON  L58 AND CORE/BI,A
                BEX
L60              QUE  SPE=ON  ABB=ON  PLU=ON  ?DENDR? OR STAR? OR STARBU
                RST? OR STAR?(A)BURST? OR FRACTAL? OR HYPERBRANCH? OR H
                YPER?(A)BRANCH?
L61              QUE  SPE=ON  ABB=ON  PLU=ON  ARITH? OR MATH? OR EQUATIO
                N? OR ALGOR!THM? OR CALCULUS OR DIFFERENTIAL? OR INTEGR
                AL? OR FUNC? OR DERIV?
L84              QUE  SPE=ON  ABB=ON  PLU=ON  EQUATION OR EQ
L86        1462 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  ORNSTEIN(A)ZER
                NIKE
L87              QUE  SPE=ON  ABB=ON  PLU=ON  DIFFERENTIAL OR INTEGRAL O
                R DERIV?
L88         984 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  L86(3A)(L84
                OR L87 OR L28 OR MODEL?)
L89          42 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  L88 AND (L60
                OR HIGH?(3A)BRANCH?)
L90       41496 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  (L31 OR (L33
                OR L34 OR L35 OR L36))(3A)(L84 OR L87 OR L28 OR
                MODEL?)
L115             QUE  SPE=ON  ABB=ON  PLU=ON  PY=<2005 NOT P/DT
L116             QUE  SPE=ON  ABB=ON  PLU=ON  (PY=<2005 OR PRY=<2005 OR
                AY=<2005 OR MY=<2005 OR REVIEW/DT) AND P/DT
L119         158 SEA FILE=WPIX SPE=ON  ABB=ON  PLU=ON  ((L47 OR L48 OR
                L49 OR L50 OR L51 OR L52 OR L53 OR L54 OR L55 OR L56
                OR L57 OR L58 OR L59))
L124         160 SEA FILE=WPIX SPE=ON  ABB=ON  PLU=ON  L119 OR L25 OR
                (L20 OR L21 OR L22)
L125         176 SEA FILE=WPIX SPE=ON  ABB=ON  PLU=ON  L124 OR (L42 OR
                L43)
L126          95 SEA FILE=WPIX SPE=ON  ABB=ON  PLU=ON  L125 AND (L44 OR
                L45)
L127          94 SEA FILE=WPIX SPE=ON  ABB=ON  PLU=ON  L126 AND (L61 OR
                L19)
L128          91 SEA FILE=WPIX SPE=ON  ABB=ON  PLU=ON  L127 AND (L60 OR
                HIGH?/BI,ABEX(3A)BRANCH?/BI,ABEX)
L129          57 SEA FILE=WPIX SPE=ON  ABB=ON  PLU=ON  L128 AND L61
L130           2 SEA FILE=WPIX SPE=ON  ABB=ON  PLU=ON  L128 AND ((L88
                OR L89 OR L90))
L131          27 SEA FILE=WPIX SPE=ON  ABB=ON  PLU=ON  L129 AND
                CORE/BI,ABEX
L132          37 SEA FILE=WPIX SPE=ON  ABB=ON  PLU=ON  L129 AND (L86 OR
                L87)
L133           3 SEA FILE=WPIX SPE=ON  ABB=ON  PLU=ON  L129 AND L31
L134          28 SEA FILE=WPIX SPE=ON  ABB=ON  PLU=ON  L129 AND L33
L135           6 SEA FILE=WPIX SPE=ON  ABB=ON  PLU=ON  L129 AND (L34 OR
                L35)
L136           0 SEA FILE=WPIX SPE=ON  ABB=ON  PLU=ON  L129 AND L36
L137          48 SEA FILE=WPIX SPE=ON  ABB=ON  PLU=ON  (L130 OR L131 OR
                L132 OR L133 OR L134 OR L135 OR L136)
L138           0 SEA FILE=WPIX SPE=ON  ABB=ON  PLU=ON  L137 AND L115
L139          20 SEA FILE=WPIX SPE=ON  ABB=ON  PLU=ON  L137 AND L116
L140          20 SEA FILE=WPIX SPE=ON  ABB=ON  PLU=ON  L138 OR L139
L141           5 SEA FILE=WPIX SPE=ON  ABB=ON  PLU=ON  L140 AND ((L7 OR
                L8 OR L9 OR L10 OR L11 OR L12 OR L13 OR L14 OR L15))
L142          20 SEA FILE=WPIX SPE=ON  ABB=ON  PLU=ON  L140 OR L141


=> dup rem l118 l117 l142
FILE 'HCAPLUS' ENTERED AT 16:03:47 ON 15 SEP 2010
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
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FILE 'WPIX' ENTERED AT 16:03:47 ON 15 SEP 2010
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PROCESSING COMPLETED FOR L118
PROCESSING COMPLETED FOR L117
PROCESSING COMPLETED FOR L142
L144          50 DUP REM L118 L117 L142 (2 DUPLICATES REMOVED)
                 ANSWERS '1-11' FROM FILE HCAPLUS
                 ANSWERS '12-26' FROM FILE PASCAL
                 ANSWERS '27-29' FROM FILE RAPRA
                 ANSWER '30' FROM FILE JAPIO
                 ANSWERS '31-50' FROM FILE WPIX
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TEXT SEARCH RESULTS

=> d l144 1-11 ibib ed abs hitind

L144 ANSWER 1 OF 50 HCAPLUS COPYRIGHT 2010 ACS on STN DUPLICATE 1
ACCESSION NUMBER: 2005:361016 HCAPLUS Full-text
DOCUMENT NUMBER: 144:52169
TITLE: Molecular recognition and adsorption equilibria in starburst dendrimers: gas structure and sensing via molecular theory
AUTHOR(S): Wilson, David Scott; Lee, Lloyd L.
CORPORATE SOURCE: School of Chemical Engineering and Materials Science, University of Oklahoma, Norman, OK, 73019, USA
SOURCE: Fluid Phase Equilibria (2005), 228-229, 197-205
CODEN: FPEQDT; ISSN: 0378-3812
PUBLISHER: Elsevier B.V.
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 28 Apr 2005
AB An idealized model for the dendrimer polyamidoamine is examined as a gas/chemical sensor. The system considered is a solution of this dendrimer in a binary mixture of two solvents: one being the analyte mols. and the other the placebo mols. The analyte species possesses special affinity to the corona (the surface) of the dendrimer, or to the exo-receptors; while the other fluid being neutral. Both Monte Carlo simulation and integral equation studies have been carried out to determine the excess adsorption of analyte population on the surfaces of dendrimers. In the simulation studies, we explicitly account for the presence of the solvent mols. (solvent-explicit). As a consequence, we find that at low gas permeation, the dendrimers exhibit dense core behavior. However, at high gas contents, the dendrimers transit to the dense shell configuration. This behavior is clearly shown in the values of R g (radius of gyration) at difference gas densities. By functionalizing the end groups, we observe pronounced analyte aggregation around the corona. Although there is no unusual behavior in these observations, we put the interrelations on a quant. basis by showing the amts. or variations of the "mol. recognition" as function of the temperature, affinity strength, gas d. and the composition To decipher the behavior on a theor. basis, we apply a self-consistent closure to the Ornstein-Zernike equations for calculating the structures of the dendrimer-gas A-gas B mixture We are able to reproduce accurately the structural information as well as the thermodn. properties for such mixts., notwithstanding the large size disparity between the dendrimer and fluid mols. (up to 10:1 ratio).
CC 36-5 (Physical Properties of Synthetic High Polymers)
Section cross-reference(s): 38, 68
ST polyamidoamine starburst dendrimer gas structure chem sensor mol theory; mol recognition polyamidoamine starburst dendrimer chem sensor; adsorption equil polyamidoamine starburst dendrimer chem sensor
IT Simulation and Modeling
(Monte Carlo simulation; mol. theory for gas structure, mol. recognition and adsorption equilibrium in polyamidoamine starburst dendrimers as chemical sensors)
IT Distribution function
(Ornstein-Zernike; mol. theory for gas structure, mol. recognition and adsorption equilibrium in polyamidoamine starburst dendrimers as chemical sensors)
IT Potential energy
(effective; mol. theory for gas structure, mol. recognition and adsorption equilibrium in polyamidoamine starburst dendrimers as chemical sensors)
IT Thermodynamics
(excess thermodn. properties; mol. theory for gas structure, mol. recognition and adsorption equilibrium in polyamidoamine

starburst dendrimers as chemical sensors)
IT Permeability
(gas; mol. theory for gas structure, mol. recognition and adsorption equilibrium in polyamidoamine starburst dendrimers as chemical sensors)
IT Mathematical methods
(integral equations; mol. theory for gas structure, mol. recognition and adsorption equilibrium in polyamidoamine starburst dendrimers as chemical sensors)
IT Adsorption
Aggregation
Coordination number
Molecular recognition
Permeation
Radial distribution function
Radius of gyration
Sensors
(mol. theory for gas structure, mol. recognition and adsorption equilibrium in polyamidoamine starburst dendrimers as chemical sensors)
IT Polyamines
RL: DEV (Device component use); PRP (Properties); USES (Uses)
(polyamide-, dendrimers; mol. theory for gas structure, mol. recognition and adsorption equilibrium in polyamidoamine starburst dendrimers as chemical sensors)
IT Dendritic polymers
RL: DEV (Device component use); PRP (Properties); USES (Uses)
(polyamide-polyamines; mol. theory for gas structure, mol. recognition and adsorption equilibrium in polyamidoamine starburst dendrimers as chemical sensors)
IT Polyamides, properties
RL: DEV (Device component use); PRP (Properties); USES (Uses)
(polyamine-, dendrimers; mol. theory for gas structure, mol. recognition and adsorption equilibrium in polyamidoamine starburst dendrimers as chemical sensors)
IT 26937-01-9, PAMAM
RL: DEV (Device component use); PRP (Properties); USES (Uses)
(dendritic; mol. theory for gas structure, mol. recognition and adsorption equilibrium in polyamidoamine starburst dendrimers as chemical sensors)
OS.CITING REF COUNT: 2 THERE ARE 2 CAPLUS RECORDS THAT CITE THIS RECORD (2 CITINGS)
REFERENCE COUNT: 30 THERE ARE 30 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L144 ANSWER 2 OF 50 HCAPLUS COPYRIGHT 2010 ACS on STN
ACCESSION NUMBER: 2005:582134 HCAPLUS Full-text
DOCUMENT NUMBER: 143:229353
TITLE: Interactions in Noncovalent PAMAM /TMPyP Systems Studied by Fluorescence Spectroscopy
AUTHOR(S): Paulo, Pedro M. R.; Costa, Silvia M. B.
CORPORATE SOURCE: Centro de Quimica Estrutural, Complexo 1, Instituto Superior Tecnico, Lisbon, 1049-001, Port.
SOURCE: Journal of Physical Chemistry B (2005), 109(29), 13928-13940
CODEN: JPCBFK; ISSN: 1520-6106
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 07 Jul 2005

AB Steady-state absorption and emission spectroscopy and time-resolved fluorescence measurements were employed in the study of meso-tetrakis(4-N-methylpyridinium)porphine (TMPyP) interactions with half-generation carboxyl-terminated poly(amidoamine) (PAMAM) dendrimers in water. TMPyP experiences a less polar environment and a strong fluorescence quenching effect upon dendrimer association The tertiary amine functional groups in PAMAM dendrimers are likely to be responsible for the fluorescence quenching of TMPyP through an electron-transfer mechanism. The Stern-Volmer plots achieve a plateau at high dendrimer concns. that was attributed to full porphyrin- dendrimer association, and an average fluorescence quantum yield of 15-20% relative to aqueous TMPyP was estimated The association constant for the 1:1 complex with generation 2.5 at dendrimer -porphyrin ratio D/P = 1 is 5.75 + 107 M-1, indicating a strong binding affinity. The dissociation of the complex with increasing ionic strength reinforces the role of electrostatic forces in porphyrin-dendrimer association Comparison of Stern-Volmer plots obtained from quantum yields or lifetimes showed the importance of a static effect in these systems. The fluorescence decays of the porphyrin-dendrimer complex were fitted with a dispersed kinetics model. At intermediate dendrimer-porphyrin ratios (D/P ≈ 1), diffusional quenching processes between free porphyrin and dendrimer were modeled with the Sano-Tachiya pair survival probability equation. Transient diffusional effects were dismissed as a possible explanation for the static effect detected.

CC 22-9 (Physical Organic Chemistry)
Section cross-reference(s): 36, 73

ST interaction noncovalent PAMAM tetrakismethylpyridiniumporphin system fluorescence spectroscopy

IT Formation constant
(association constant; interactions in noncovalent PAMAM /TMPyP systems studied by fluorescence spectroscopy)

IT Optical anisotropy
(fluorescence; interactions in noncovalent PAMAM /TMPyP systems studied by fluorescence spectroscopy)

IT Fluorescence
Fluorescence decay
Fluorescence quenching
UV and visible spectra
(interactions in noncovalent PAMAM/TMPyP systems studied by fluorescence spectroscopy)

IT Dendritic polymers
Porphyrins
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); PROC (Process)
(interactions in noncovalent PAMAM/TMPyP systems studied by fluorescence spectroscopy)

IT Molecular association
(porphyrin-dendrimer; interactions in noncovalent PAMAM/TMPyP systems studied by fluorescence spectroscopy)

IT 38673-65-3, meso-Tetrakis(4-N-methylpyridiniumyl)porphyrin
202009-65-2, Starburst Generation 2.5 202009-66-3, Starburst Generation 4.5
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); PROC (Process)
(interactions in noncovalent PAMAM/TMPyP systems studied by fluorescence spectroscopy)

OS.CITING REF COUNT: 17 THERE ARE 17 CAPLUS RECORDS THAT CITE THIS RECORD (17 CITINGS)

REFERENCE COUNT: 88 THERE ARE 88 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L144 ANSWER 3 OF 50 HCAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 2005:123736 HCAPLUS Full-text

DOCUMENT NUMBER: 142:355991

TITLE: Behavior of polyamidoamine dendrimers as curing agents in bis-phenol A epoxy resin systems

AUTHOR(S): Cheng, Yiyun; Chen, Dazhu; Fu, Rongqiang; He,

Pingsheng
CORPORATE SOURCE: Department of Polymer Science and Engineering, University of Science and Technology of China, Hefei, 230026, Peop. Rep. China
SOURCE: Polymer International (2005), 54(3), 495-499
CODEN: PLYIEI; ISSN: 0959-8103
PUBLISHER: John Wiley & Sons Ltd.
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 14 Feb 2005
AB Polyamidoamine (PAMAM) dendrimers with different generations (0-5) were investigated as curing agents in epoxy resin systems. Flory's gelation theory and the Avrami equation were used to predict the cure behavior of epoxy resin/PAMAM/imidazole at various temps. and PAMAM concns. The theor. prediction is in good agreement with the exptl. results obtained from the dynamic torsional vibration method.
CC 37-6 (Plastics Manufacture and Processing)
ST polyamidoamine dendrimer curing agent bisphenol epoxy resin
IT Crosslinking agents
Crosslinking kinetics
(behavior of polyamidoamine dendrimers as curing agents in bisphenol A epoxy resin systems)
IT Epoxy resins, properties
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)
(behavior of polyamidoamine dendrimers as curing agents in bisphenol A epoxy resin systems)
IT Polyamines
RL: MOA (Modifier or additive use); RCT (Reactant); RACT (Reactant or reagent); USES (Uses)
(polyamide-, dendrimers; behavior of polyamidoamine dendrimers as curing agents in bisphenol A epoxy resin systems)
IT Dendritic polymers
RL: MOA (Modifier or additive use); RCT (Reactant); RACT (Reactant or reagent); USES (Uses)
(polyamide-polyamines; behavior of polyamidoamine dendrimers as curing agents in bisphenol A epoxy resin systems)
IT Polyamides, uses
RL: MOA (Modifier or additive use); RCT (Reactant); RACT (Reactant or reagent); USES (Uses)
(polyamine-, dendrimers; behavior of polyamidoamine dendrimers as curing agents in bisphenol A epoxy resin systems)
IT 25085-99-8, E 51 (Chinese epoxy resin)
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)
(behavior of polyamidoamine dendrimers as curing agents in bisphenol A epoxy resin systems)
IT 26937-01-9, PAMAM
RL: MOA (Modifier or additive use); RCT (Reactant); RACT (Reactant or reagent); USES (Uses)
(dendritic; behavior of polyamidoamine dendrimers as curing agents in bisphenol A epoxy resin systems)
OS.CITING REF COUNT: 9 THERE ARE 9 CAPLUS RECORDS THAT CITE THIS RECORD (9 CITINGS)
REFERENCE COUNT: 24 THERE ARE 24 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L144 ANSWER 4 OF 50 HCAPLUS COPYRIGHT 2010 ACS on STN
ACCESSION NUMBER: 2005:176477 HCAPLUS Full-text
DOCUMENT NUMBER: 143:367823
TITLE: Exciton dynamics in nanostar dendritic

systems using a quantum master equation approach: core monomer effects and possibility of energy transport control

AUTHOR(S): Nakano, Masayoshi; Kishi, Ryohei; Takahata, Masahiro; Nitta, Tomoshige; Yamaguchi, Kizashi

CORPORATE SOURCE: Department of Materials Engineering Science, Division of Chemical Engineering, Graduate School of Engineering Science, Osaka University, Toyonaka, Osaka, 560-8531, Japan

SOURCE: Journal of Luminescence (2005), 111(4), 359-366
CODEN: JLUMA8; ISSN: 0022-2313

PUBLISHER: Elsevier B.V.

DOCUMENT TYPE: Journal

LANGUAGE: English

ED Entered STN: 03 Mar 2005

AB The directional energy transport, i.e. exciton migration, in nanostar dendritic systems composed of 2-state monomer units is studied using a quantum master equation approach. The authors examine the effects of the variation in the excitation energy of the monomer in the core region (core monomer) on the multistep exciton migration from the periphery to the core based on the relaxation factors among exciton states originating in weak exciton-phonon coupling. When the core monomer possesses both an excitation energy slightly lower than that of the 1st generation and a partial exciton overlap with the 1st generation, more efficient and rapid exciton migration to the core is expected as compared with other core monomer cases with the energy level closer to or much lower than that of the 1st generation.

CC 36-5 (Physical Properties of Synthetic High Polymers)

ST dendrimer exciton dynamics master equation energy transport phonon interaction

IT Exciton
Intramolecular energy transfer
Master equation
(exciton dynamics in nanostar dendrimers using quantum master equation approach with core monomer effects and possibility of energy transport control)

IT Dendritic polymers
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); PROC (Process)
(exciton dynamics in nanostar dendrimers using quantum master equation approach with core monomer effects and possibility of energy transport control)

IT Phonon
(exciton-phonon dynamics; exciton dynamics in nanostar dendrimers using quantum master equation approach with core monomer effects and possibility of energy transport control)

OS.CITING REF COUNT: 6 THERE ARE 6 CAPLUS RECORDS THAT CITE THIS RECORD (6 CITINGS)

REFERENCE COUNT: 31 THERE ARE 31 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L144 ANSWER 5 OF 50 HCAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 2004:1049455 HCAPLUS Full-text

DOCUMENT NUMBER: 142:156647

TITLE: Integral equation theory for athermal solutions of linear polymers

AUTHOR(S): Chatterjee, Avik P.

CORPORATE SOURCE: Department of Chemistry, 121 Edwin C. Jahn Laboratory, SUNY-ESF, Syracuse, NY, 13210, USA

SOURCE: Journal of Chemical Physics (2004), 121(22), 11432-11439
CODEN: JCPSA6; ISSN: 0021-9606

PUBLISHER: American Institute of Physics

DOCUMENT TYPE: Journal

LANGUAGE: English

ED Entered STN: 08 Dec 2004
AB An integral equation model is developed for athermal solns. of flexible linear polymers with particular reference to good solvent conditions. Results from scaling theory are used in formulating form factors for describing the single chain structure, and the impact of solvent quality on the chain fractal dimension is accounted for. Calcns. are performed within the stringlike implementation of the polymer reference interaction site model with blobs (as opposed to complete chains) treated as the constituent structural units for semidilute solns. Results are presented for the second virial coefficient between polymer coils and the osmotic compressibility as functions of the chain length and polymer volume fraction, resp. Findings from this model agree with results from scaling theory and exptl. measurements, as well as with an earlier investigation in which self-avoiding chains were described using Gaussian form factors with a chain length and concentration-dependent effective statistical segment length. The volume fractions at the threshold for connectedness percolation are evaluated within a coarse-grained closure relation for the connectedness Ornstein-Zernike equation. Results from these calcns. are consistent with the usual interpretation of the semidilute crossover concentration for model solns. of both ideal and swollen polymer coils.
CC 36-7 (Physical Properties of Synthetic High Polymers)
Section cross-reference(s): 69
ST linear polymer athermal soln thermodn integral equation theory
IT Fractals
Percolation
Polymer chains
Second virial coefficient
Simulation and Modeling
(integral equation theory for athermal solns. of flexible linear polymers with good solvent conditions)
IT Polymers, properties
RL: PRP (Properties)
(integral equation theory for athermal solns. of flexible linear polymers with good solvent conditions)
IT Compressibility
(osmotic; integral equation theory for athermal solns. of flexible linear polymers with good solvent conditions)
IT Field theory
(scaling theory; integral equation theory for athermal solns. of flexible linear polymers with good solvent conditions)
OS.CITING REF COUNT: 2 THERE ARE 2 CAPLUS RECORDS THAT CITE THIS RECORD (2 CITINGS)
REFERENCE COUNT: 39 THERE ARE 39 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L144 ANSWER 6 OF 50 HCAPLUS COPYRIGHT 2010 ACS on STN
ACCESSION NUMBER: 2005:48777 HCAPLUS Full-text
DOCUMENT NUMBER: 142:464306
TITLE: Curing behavior of E 51/PAMAM systems by dynamic torsional vibration method
AUTHOR(S): Cheng, Yi-yun; Chen, Da-zhu; He, Ping-sheng
CORPORATE SOURCE: Department of Polymer Science and Engineering, University of Science and Technology of China, Hefei, 230026, Peop. Rep. China
SOURCE: Gongneng Gaofenzi Xuebao (2004), 17(4), 661-665
CODEN: GGXUEH; ISSN: 1008-9357
PUBLISHER: Gongneng Gaofenzi Xuebao Bianjibu
DOCUMENT TYPE: Journal
LANGUAGE: Chinese
ED Entered STN: 20 Jan 2005
AB The Flory's gelation theory and Avrami equation were used to predict the gel time tg and the cure behavior of epoxy resin E 51/PAMAM systems, The theor. prediction is in good agreement with the exptl. results obtained by dynamic torsional vibration method.
CC 37-3 (Plastics Manufacture and Processing)

ST epoxy resin PAMAM curing behavior
IT Crosslinking
Crosslinking kinetics
(curing behavior of epoxy resin E 51/PAMAM systems)
IT Epoxy resins, properties
RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
(curing behavior of epoxy resin E 51/PAMAM systems)
IT Activation energy
(of curing in epoxy resin E 51/PAMAM systems)
IT Polyamines
RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
(polyamide-, dendrimers; curing behavior of epoxy resin E 51/PAMAM systems)
IT Dendritic polymers
RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
(polyamide-polyamines; curing behavior of epoxy resin E 51/PAMAM systems)
IT Polyamides, properties
RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
(polyamine-, dendrimers; curing behavior of epoxy resin E 51/PAMAM systems)
IT 25085-99-8, E 51
RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
(curing behavior of epoxy resin E 51/PAMAM systems)
IT 26937-01-9, PAMAM
RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
(dendritic; curing behavior of epoxy resin E 51/PAMAM systems)

L144 ANSWER 7 OF 50 HCAPLUS COPYRIGHT 2010 ACS on STN
ACCESSION NUMBER: 2004:285317 HCAPLUS Full-text
DOCUMENT NUMBER: 141:35312
TITLE: Polyamidoamine dendrimers inhibit binding of Tat peptide to TAR RNA
AUTHOR(S): Zhao, Hong; Li, Jinru; Xi, Fu; Jiang, Long
CORPORATE SOURCE: Institute of Chemistry, Center for Molecular Science, Chinese Academy of Sciences, Beijing, 100080, Peop. Rep. China
SOURCE: FEBS Letters (2004), 563(1-3), 241-245
CODEN: FEBLAL; ISSN: 0014-5793
PUBLISHER: Elsevier Science B.V.
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 07 Apr 2004
AB The binding of polyamidoamine (PAMAM) dendrimer or Tat peptide to trans-acting responsive element (TAR) RNA has been studied using microgravimetric quartz crystal microbalance (QCM). Exptl. results showed that PAMAM dendrimer could form complexes with TAR RNA. In addition, PAMAM dendrimer could disrupt the interaction of Tat peptide with TAR RNA, which is essential for HIV-1 virus replication, suggesting that QCM is a powerful tool for studying the binding processes of Tat peptide-TAR RNA and drug-TAR RNA and has great significance for the design of new drugs. An equation to measure the binding ability between TAR RNA and other species has been proposed.
CC 6-7 (General Biochemistry)
ST polyamidoamine dendrimer complex TAR hairpin RNA inhibition Tat HIV1
IT Genetic element
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(TAR element; association of PAMAM polyamidoamine dendrimer with TAR RNA hairpin inhibits binding of HIV-1 Tat peptide to TAR hairpin)
IT Human immunodeficiency virus 1
(association of PAMAM polyamidoamine dendrimer with TAR RNA hairpin inhibits binding of HIV-1 Tat peptide to TAR hairpin)
IT Molecular association
(dendrimer-RNA; association of PAMAM

polyamidoamine dendrimer with TAR RNA hairpin
inhibits binding of HIV-1 Tat peptide to TAR hairpin)
IT Conformation
(hairpin loop; association of PAMAM polyamidoamine
dendrimer with TAR RNA hairpin inhibits binding of
HIV-1 Tat peptide to TAR hairpin)
IT Polyamines
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(polyamide-, dendrimers; association of PAMAM
polyamidoamine dendrimer with TAR RNA hairpin
inhibits binding of HIV-1 Tat peptide to TAR hairpin)
IT Dendritic polymers
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(polyamide-polyamines; association of PAMAM
polyamidoamine dendrimer with TAR RNA hairpin
inhibits binding of HIV-1 Tat peptide to TAR hairpin)
IT Polyamides, biological studies
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(polyamine-, dendrimers; association of PAMAM
polyamidoamine dendrimer with TAR RNA hairpin
inhibits binding of HIV-1 Tat peptide to TAR hairpin)
IT Transcription factors
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(tat; association of PAMAM polyamidoamine
dendrimer with TAR RNA hairpin inhibits binding of
HIV-1 Tat peptide to TAR hairpin)
IT 153891-46-4, Starburst 3rd Generation
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(PAMAM dendrimer; association of PAMAM
polyamidoamine dendrimer with TAR RNA hairpin
inhibits binding of HIV-1 Tat peptide to TAR hairpin)
IT 702016-86-2D, 5'-biotin labeled
RL: BSU (Biological study, unclassified); BUU (Biological use,
unclassified); BIOL (Biological study); USES (Uses)
(TAR hairpin; association of PAMAM polyamidoamine
dendrimer with TAR RNA hairpin inhibits binding of
HIV-1 Tat peptide to TAR hairpin)
IT 253141-50-3
RL: BSU (Biological study, unclassified); BUU (Biological use,
unclassified); BIOL (Biological study); USES (Uses)
(Tat peptide; association of PAMAM polyamidoamine
dendrimer with TAR RNA hairpin inhibits binding of
HIV-1 Tat peptide to TAR hairpin)
OS.CITING REF COUNT: 18 THERE ARE 18 CAPLUS RECORDS THAT CITE THIS RECORD (18 CITINGS)
REFERENCE COUNT: 33 THERE ARE 33 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L144 ANSWER 8 OF 50 HCAPLUS COPYRIGHT 2010 ACS on STN
ACCESSION NUMBER: 2004:883594 HCAPLUS Full-text
DOCUMENT NUMBER: 142:280581
TITLE: Mathematical description of dendrimer structure
AUTHOR(S): Majoros, Istvan J.; Mehta, Chandan B.; Baker, James R., Jr.
CORPORATE SOURCE: Center for Biologic Nanotechnology, University of Michigan, Ann Arbor, MI, 48109-0533, USA
SOURCE: Journal of Computational and Theoretical Nanoscience (2004), 1(2), 193-198
CODEN: JCTNAB; ISSN: 1546-1955
PUBLISHER: American Scientific Publishers
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 25 Oct 2004
AB The characteristics of starburst dendrimers are attributed to the multiplicity of monomers and functional groups. The mol. weight, d.p., number of terminal groups, and

branching points for each generation of a dendrimer can be calculated using math. equations. Math. models for the calcn. of d.p., mol. weight, and number of terminal groups and branching groups previously published were revised and enhanced for poly(amidoamine) (PAMAM) dendrimers, and introduced for poly(propyleneimine) (POPAM) dendrimers and POPAM-PAMAM hybrid, the POMAM dendrimer. Exptl. verification of the relation between theor. and actual structure for the PAMAM dendrimer was also established.

CC 36-2 (Physical Properties of Synthetic High Polymers)

ST dendrimer structure parameter calcn equation
mol wt branching point; polyamidoamine propyleneimine hybrid
dendrimer structure calcn

IT Polymer chains
(branching; math. equations for calcn. of
mol. weight and d.p. and terminal group number and branching number of
dendrimers)

IT Functional groups
(chain; math. equations for calcn. of mol.
weight and d.p. and terminal group number and branching number of
dendrimers)

IT Molecular weight
(math. equations for calcn. of mol. weight and
d.p. and terminal group number and branching number of
dendrimers)

IT Dendritic polymers
RL: PRP (Properties)
(math. equations for calcn. of mol. weight and
d.p. and terminal group number and branching number of
dendrimers)

IT Polyamines
RL: PRP (Properties)
(polyamide-, dendrimers; math.
equations for calcn. of mol. weight and d.p. and terminal
group number and branching number of dendrimers)

IT Dendritic polymers
RL: PRP (Properties)
(polyamide-polyamines; math. equations for
calcn. of mol. weight and d.p. and terminal group number and
branching number of dendrimers)

IT Polyamides, properties
RL: PRP (Properties)
(polyamine-, dendrimers; math.
equations for calcn. of mol. weight and d.p. and terminal
group number and branching number of dendrimers)

IT Functional groups
(terminal groups; math. equations for
calcn. of mol. weight and d.p. and terminal group number and
branching number of dendrimers)

IT 107-13-1D, 2-Propenenitrile, hydrogenated, Michael addition
dendrimers and graft polymers with PAMAM
dendrimers
RL: PRP (Properties)
(Poly(propyleneimine); math. equations for
calcn. of mol. weight and d.p. and terminal group number and
branching number of dendrimers)

IT 26937-01-9, PAMAM 26937-01-9D,
PAMAM, graft polymers with poly(propyleneimine)
dendrimers
RL: PRP (Properties)
(dendritic; math. equations for
calcn. of mol. weight and d.p. and terminal group number and
branching number of dendrimers)

OS.CITING REF COUNT: 7 THERE ARE 7 CAPLUS RECORDS THAT CITE THIS RECORD (7 CITINGS)

REFERENCE COUNT: 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L144 ANSWER 9 OF 50 HCAPLUS COPYRIGHT 2010 ACS on STN
ACCESSION NUMBER: 2002:638472 HCAPLUS Full-text
DOCUMENT NUMBER: 137:311494
TITLE: Diffusion of Mesoscopic Probes in Aqueous Polymer Solutions Measured by Fluorescence Recovery after Photobleaching
AUTHOR(S): Cheng, Yu; Prud'homme, Robert K.; Thomas, James L.
CORPORATE SOURCE: Department of Chemical Engineering, Princeton University, Princeton, NJ, 08540, USA
SOURCE: Macromolecules (2002), 35(21), 8111-8121
CODEN: MAMOBX; ISSN: 0024-9297
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 25 Aug 2002

AB Fluorescence recovery after photobleaching (FRAP) has been used to follow the diffusion of mesoscopic probes (1 nm < R < 20 nm) in aqueous poly(ethylene oxide) (PEO) and guar galactomannan solns. We define "mesoscopic" as the regime for which the size of the diffusing species is of the same order as the screening length ξ in the polymer matrix solution We show that diffusion depends not only on the dimensionless length scale R/ξ but also on the dimensionless time scale corresponding to the relaxation of the polymer mesh by "constraint release" vs. the time for motion of the probe species over the length ξ. Two different FRAP techniques were used: fringe pattern bleaching and recovery (FPBR) and confocal scanning laser microscopy (CSLM). The effect of probe structure on diffusion through polymer matrixes was investigated by measurements on probes with differing fractal dimensions (df): proteins and polystyrene latex particles behave as rigid spheres (df = 3); dextrans are slightly branched polymers with a more expanded conformation (df = 2.3); dendrimers fall between these two with a d. first decreasing and then increasing with generation. Dendrimers at low generations (G0) and high generations (G9-G10) are compact, while the intermediate generations (G2-G6) are more porous. Probe diffusion was found to be a function of the fractal dimension of the probe: the diffusion of rigid spheres was shown to be more hindered in semidilute and concentrated polymer solns. than dextran mols. with the same hydrodynamic size in free solution The scaling equation D/D0 = exp[-β(R/ξ)δ] fit the exptl. results well for mesoscopic, rigid spherical probes. The effects of matrix polymer stiffness and polymer mol. weight were also addressed. At constant screening length ξ (i.e., constant polymer concentration) polymers of different mol. wts. are used to demonstrate the region of mesoscopic probe diffusion that is independent of the matrix polymer mol. weight The dependence of diffusivity on the ratio of the matrix polymer persistence length lp to the mesh size ξ was shown from measurements using the flexible PEO and more rigid guar as matrix polymers. At equal mesh size, diffusion through the more rigid matrix is hindered relative to that through the more flexible mesh; this effect becomes more pronounced as concentration increases and mesh size decreases.

CC 36-7 (Physical Properties of Synthetic High Polymers)
Section cross-reference(s): 34
ST diffusion dendritic polymer soln; polyamidoamine dendritic polymer diffusion
IT Polyamines
RL: PRP (Properties)
(polyamide-, dendrimers; diffusion of mesoscopic probes in aqueous polymer solns. measured by fluorescence recovery after photobleaching)
IT Dendritic polymers
RL: PRP (Properties)
(polyamide-polyamines; diffusion of mesoscopic probes in aqueous polymer solns. measured by fluorescence recovery after photobleaching)
IT Polyamides, properties
RL: PRP (Properties)
(polyamine-, dendrimers; diffusion of mesoscopic probes in aqueous polymer solns. measured by fluorescence recovery after photobleaching)
IT 26937-01-9D, PAMAM, amine or fluorescein

terminated
RL: PRP (Properties)
(dendritic, probe; diffusion of mesoscopic probes in aqueous polymer solns. measured by fluorescence recovery after photobleaching)
OS.CITING REF COUNT: 42 THERE ARE 42 CAPLUS RECORDS THAT CITE THIS RECORD (43 CITINGS)
REFERENCE COUNT: 70 THERE ARE 70 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L144 ANSWER 10 OF 50 HCAPLUS COPYRIGHT 2010 ACS on STN
ACCESSION NUMBER: 2002:620113 HCAPLUS Full-text
DOCUMENT NUMBER: 138:154114
TITLE: Star-polymer-colloid mixtures
AUTHOR(S): Dzubiella, J.; Jusufi, A.
CORPORATE SOURCE: Institut fur Theoretische Physik II, Heinrich-Heine-Universitat Dusseldorf, Dusseldorf, D-40225, Germany
SOURCE: Condensed Matter Physics (2002), 30, 285-305
CODEN: CMPHF5
PUBLISHER: Institute for Condensed Matter Physics of the National Academy of Sciences of Ukraine
DOCUMENT TYPE: Journal; General Review
LANGUAGE: English
ED Entered STN: 18 Aug 2002
AB A review. Recent results in theory and simulation of star -polymer-colloid mixts. are discussed. We present the effective interaction between hard, colloidal particles and star polymers in a good solvent derived by monomer-resolved Mol. Dynamics simulations and theor. arguments. The relevant parameters are the size ratio q between the stars and the colloids, and the number of polymeric arms f (functionality) attached to the common center of the star. By covering a wide range of q's ranging from zero (star against a flat wall) up to about 0.5, we establish anal. forms for the star-colloid interaction which are in excellent agreement with simulation results. By employing this cross interaction and the effective interactions between stars and colloids themselves, a demixing transition in the fluid phase is observed and systematically studied for different arm nos. and size ratios. The demixing binodals are compared with exptl. observations and consistent. Furthermore, we map the full two-component system on an effective one-component description for the colloids, by inverting the two-component Ornstein-Zernike equations. Some recent results for the depletion interaction and freezing transitions are shown.
CC 37-0 (Plastics Manufacture and Processing)
ST review modeling star polymer colloid mixt phase diagram
IT Colloids
Phase diagram
(modeling phase diagram star polymer colloid mixts.)
IT Simulation and Modeling
(mol. dynamics; modeling phase diagram star polymer colloid mixts.)
IT Polymers, properties
RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
(star-branched; modeling phase diagram star polymer colloid mixts.)
OS.CITING REF COUNT: 1 THERE ARE 1 CAPLUS RECORDS THAT CITE THIS RECORD (1 CITINGS)
REFERENCE COUNT: 40 THERE ARE 40 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L144 ANSWER 11 OF 50 HCAPLUS COPYRIGHT 2010 ACS on STN
ACCESSION NUMBER: 2000:374468 HCAPLUS Full-text
DOCUMENT NUMBER: 133:105684
TITLE: Ionic conductivity of alkali-metal carboxylated dendritic poly(amidoamine) electrolytes and their lithium perchlorate salt complex

AUTHOR(S): Gong, Aijun; Liu, Changyan; Chen, Yongming; Chen, Chuanfu; Xi, Fu
CORPORATE SOURCE: Center for Molecular Science, Institute of Chemistry, Chinese Academy of Sciences, Beijing, 100080, Peop. Rep. China
SOURCE: Polymer (2000), 41(16), 6103-6111
CODEN: POLMAG; ISSN: 0032-3861
PUBLISHER: Elsevier Science Ltd.
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 06 Jun 2000
AB The ionic conductive dendrimer electrolytes, prepared by terminal alkali-metal (Li+, Na+, K+) carboxylation of poly(amidoamine) (PAMAM) of generation 2.5 and 3.5, exhibit conductivity of 10-5-10-6 S cm-1 at 30°. The temperature dependence of ionic conductivity fits neither the WLF mechanism nor the Arrhenius equation; this is attributed to the unique mol. structure of the dendrimer. Blending of lithium carboxylated PAMAM with lithium perchlorate led to improved conductivity of the ionic conductors.
CC 37-5 (Plastics Manufacture and Processing)
Section cross-reference(s): 72, 76
ST polyamidoamine dendrimer terminal carboxylate metal salt electrolyte; ionic cond temp dependence polyamidoamine dendrimer carboxylate; lithium perchlorate complex polyamidoamine dendrimer carboxylate
IT Polyamines
Polyamines
Polyamines
RL: PRP (Properties)
(polyamide-, dendrimers; structural effects on ionic conductivity of alkali-metal carboxylated poly(amidoamine) dendrimer electrolytes and mixts. with lithium perchlorate)
IT Dendritic polymers
RL: PRP (Properties)
(polyamide-polyamines; structural effects on ionic conductivity of alkali-metal carboxylated poly(amidoamine) dendrimer electrolytes and mixts. with lithium perchlorate)
IT Polyamides, properties
Polyamides, properties
Polyamides, properties
RL: PRP (Properties)
(polyamine-, dendrimers; structural effects on ionic conductivity of alkali-metal carboxylated poly(amidoamine) dendrimer electrolytes and mixts. with lithium perchlorate)
IT Ionic conductivity
Polymer electrolytes
Supramolecular structure
(structural effects on ionic conductivity of alkali-metal carboxylated poly(amidoamine) dendrimer electrolytes and mixts. with lithium perchlorate)
IT 26937-01-9D, PAMAM, carboxylate terminated, sodium salts
RL: PRP (Properties)
(dendritic; structural effects on ionic conductivity of alkali-metal carboxylated poly(amidoamine) dendrimer electrolytes and mixts. with lithium perchlorate)
IT 7791-03-9, Lithium perchlorate
RL: PRP (Properties)
(mixts. with alkali metal carboxylated dendrimers; structural effects on ionic conductivity of alkali-metal carboxylated poly(amidoamine) dendrimer electrolytes and mixts. with lithium perchlorate)
IT 7439-93-2D, Lithium, carboxylated PAMAM dendrimer complexes, properties 7440-09-7D, Potassium, carboxylated PAMAM dendrimer complexes, properties 7440-23-5D, Sodium, carboxylated PAMAM

dendrimer complexes, properties
RL: PRP (Properties)
(structural effects on ionic conductivity of alkali-metal carboxylated poly(amidoamine) dendrimer electrolytes and mixts. with lithium perchlorate)
OS.CITING REF COUNT: 3 THERE ARE 3 CAPLUS RECORDS THAT CITE THIS RECORD (3 CITINGS)
REFERENCE COUNT: 25 THERE ARE 25 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

=> d l144 12-30 ibib ab hit ind

L144 ANSWER 12 OF 50 PASCAL COPYRIGHT 2010 INIST-CNRS. ALL RIGHTS RESERVED. on STN DUPLICATE 2
ACCESSION NUMBER: 1999-0133528 PASCAL Full-text
COPYRIGHT NOTICE: Copyright .COPYRGT. 1999 INIST-CNRS. All rights reserved.
TITLE (IN ENGLISH): Molecular weight distribution of hyperbranched polymers generated from polycondensation of AB.sub.2 type monomers in the presence of multifunctional core moieties
AUTHOR: DEYUE YAN; ZHIPING ZHOU
CORPORATE SOURCE: School of Chemistry and Chemical Technology, Shanghai Jiao Tong University, 1954 Hua Shan Road, Shanghai 200030, China
SOURCE: Macromolecules, (1999), 32(3), 819-824, 14 refs.
ISSN: 0024-9297 CODEN: MAMOBX
DOCUMENT TYPE: Journal
BIBLIOGRAPHIC LEVEL: Analytic
COUNTRY: United States
LANGUAGE: English
AVAILABILITY: INIST-13789, 354000074332540400
AB The molecular weight distribution and its moments for the hyperbranched polymer formed by the polycondensation of an AB.sub.2 type monomer with a multifunctional core moiety were derived rigorously by means of the kinetic method. The variations of several molecular parameters of the growing polymer during the reaction were estimated. The presence of a small amount of multifunctional core molecules, RB.sub.f, in the polycondensation system of AB.sub.2 type monomers is found to lead to a marked reduction in the polydispersity index of the final polymer. During the polymerization process, the molecular weight distribution first becomes broader with increasing conversion of A groups and then abruptly becomes considerably more narrow as the reaction approaches completion. The greater the number of functional groups in the core moiety, the narrower the final molecular weight distribution of the polymer.
TIEN Molecular weight distribution of hyperbranched polymers generated from polycondensation of AB.sub.2 type monomers in the presence of multifunctional core moieties
SO Macromolecules, (1999), 32(3), 819-824, 14 refs.
ISSN: 0024-9297 CODEN: MAMOBX
AB The molecular weight distribution and its moments for the hyperbranched polymer formed by the polycondensation of an AB.sub.2 type monomer with a multifunctional core moiety were derived rigorously by means of the kinetic method. The variations of several molecular parameters of the growing polymer during the reaction were estimated. The presence of a small amount of multifunctional core molecules, RB.sub.f, in the polycondensation system of AB.sub.2 type monomers is found to lead to a marked reduction in the polydispersity index of the final polymer. During the polymerization process, the molecular weight distribution first becomes broader with increasing conversion of A groups and then abruptly becomes considerably more narrow as the reaction approaches completion. The greater the number of functional groups in the core moiety, the narrower the final molecular weight distribution of the polymer.
CT Branched polymer; Condensation polymerization; Self condensation; Polyfunctional compound; Modeling; Kinetic model; Molecular weight distribution; Theoretical study

CTFR Polymere ramifie; Polycondensation; Autocondensation; Compose polyfonctionnel; Modelisation; Modele cinetique; Distribution masse moleculaire; Etude theorique; Polymere hyperramifie
CTES Polimero ramificado; Policondensacion; Autocondensacion; Compuesto polifuncional; Modelizacion; Modelo cinetico; Distribucion masa molecular; Estudio teorico
AN 1999-0133528 PASCAL Full-text
CP Copyright .COPYRGT. 1999 INIST-CNRS. All rights reserved.
CC 001D09D02A; Applied sciences; Physicochemistry of polymers, Macromolecular chemistry, Materials science; Organic polymers
CCFR 001D09D02A; Sciences appliquees; Physicochimie des polymeres, Chimie macromoleculaire, Science des materiaux; Polymeres organiques
CCES 001D09D02A; Ciencias aplicadas; Fisicoquimica de los polimeros, Quimica macromolecular, Ciencia de los materiales; Polimeros organicos
CT Branched polymer; Condensation polymerization; Self condensation; Polyfunctional compound; Modeling; Kinetic model; Molecular weight distribution; Theoretical study
CTFR Polymere ramifie; Polycondensation; Autocondensation; Compose polyfonctionnel; Modelisation; Modele cinetique; Distribution masse moleculaire; Etude theorique; Polymere hyperramifie
CTES Polimero ramificado; Policondensacion; Autocondensacion; Compuesto polifuncional; Modelizacion; Modelo cinetico; Distribucion masa molecular; Estudio teorico

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ACCESSION NUMBER:	2004-0465382 PASCAL Full-text
COPYRIGHT NOTICE:	Copyright .COPYRGT. 2004 INIST-CNRS. All rights reserved.
TITLE (IN ENGLISH):	A stochastic cellular automaton model for traffic flow with multiple metastable states
AUTHOR:	NISHINARI Katsuhiro; FUKUI Minoru; SCHADSCHNEIDER Andreas
CORPORATE SOURCE:	Department of Applied Mathematics and Informatics, Ryukoku University, Shiga 520-2194, Japan; Nakanihon Automotive College, Gifu, 505-0077, Japan; Institute for Theoretical Physics, University of Cologne, 50923 Koeln, Germany, Federal Republic of
SOURCE:	Journal of physics A : mathematical and general, (2004), 37(9), 3101-3110, 31 refs. ISSN: 0305-4470 CODEN: JPHAC5
DOCUMENT TYPE:	Journal
BIBLIOGRAPHIC LEVEL:	Analytic
COUNTRY:	United Kingdom
LANGUAGE:	English
AVAILABILITY:	INIST-577C, 354000116703700040

AB A new stochastic cellular automaton (CA) model of traffic flow, which includes slow-to-start effects and a driver's perspective, is proposed by extending the Burgers CA and the Nagel-Schreckenberg CA model. The flow-density relation of this model shows multiple metastable branches near the transition density from free to congested traffic, which form a wide scattering area in the fundamental diagram. The stability of these branches and their velocity distributions are explicitly studied by numerical simulations.
TIEN A stochastic cellular automaton model for traffic flow with multiple metastable states
SO Journal of physics A : mathematical and general, (2004) , 37(9), 3101-3110, 31 refs.
ISSN: 0305-4470 CODEN: JPHAC5

AB A new stochastic cellular automaton (CA) model of traffic flow, which includes slow-to-start effects and a driver's perspective, is proposed by extending the Burgers CA and the Nagel-Schreckenberg CA model. The flow-density relation of this model shows multiple metastable branches near the transition density from free to congested traffic, which form a wide scattering area in the fundamental diagram. The stability of these branches and their velocity distributions are explicitly studied by numerical simulations.
CT Stochastic model; Cellular automata; Velocity distribution; Digital simulation; Traffic flow; Burgers equation
CTFR Modele stochastique; Automate cellulaire; Distribution vitesse; Simulation numerique; Ecoulement trafic; Equation Burgers
CTES Modelo estocastico; Flujo trafico
AN 2004-0465382 PASCAL Full-text

CC 001B00Z65; Physics
001B80C70F; Physics; Rheology
CCFR 001B00Z65; Physique
001B80C70F; Physique; Rheologie
CCES 001B00Z65; Fisica
001B80C70F; Fisica; Reologia
CT Stochastic model; Cellular automata; Velocity distribution; Digital simulation; Traffic flow; Burgers equation
CTFR Modele stochastique; Automate cellulaire; Distribution vitesse; Simulation numerique; Ecoulement trafic; Equation Burgers
CTES Modelo estocastico; Flujo trafico

L144 ANSWER 14 OF 50 PASCAL COPYRIGHT 2010 INIST-CNRS. ALL RIGHTS RESERVED. on STN
ACCESSION NUMBER: 2003-0043648 PASCAL Full-text

TITLE (IN ENGLISH): Thermodynamically consistent equation of state of hard sphere fluids
AUTHOR: EU Byung Chan; OHR Young Gie
CORPORATE SOURCE: Department of Chemistry, McGill University, Montreal, Quebec H3A 2K6, Canada
SOURCE: The Journal of chemical physics, (2003-02-01), 118(5), 2264-2269
ISSN: 0021-9606 CODEN: JCPSA6
DOCUMENT TYPE: Journal
BIBLIOGRAPHIC LEVEL: Analytic
COUNTRY: United States
LANGUAGE: English
AVAILABILITY: INIST-127
AB The Wiener-Hopf technique has been been applied to solve the Ornstein-Zernike equation for hard sphere fluids and to calculate thereby a thermodynamically consistent equation of state. An analytic form of a thermodynamically consistent equation of state for hard sphere fluids is obtained in which the correlation range is treated as an adjustable parameter. With a suitable choice of the range parameter the equation of state presented is found to be numerically comparable to the Carnahan- Starling equation of state in accuracy. .COPYRGT. 2003 American Institute of Physics.
TIEN Thermodynamically consistent equation of state of hard sphere fluids
SO The Journal of chemical physics, (2003-02-01), 118(5), 2264-2269
ISSN: 0021-9606 CODEN: JCPSA6
AB The Wiener-Hopf technique has been been applied to solve the Ornstein-Zernike equation for hard sphere fluids and to calculate thereby a thermodynamically consistent equation of state. An analytic form of a thermodynamically consistent equation of state for hard sphere fluids is obtained in which the correlation range is treated as an adjustable parameter. With a suitable choice of the range parameter the equation of state presented is found to be numerically comparable to the Carnahan- Starling equation of state in accuracy. .COPYRGT. 2003 American Institute of Physics.

CT Theoretical study; Liquid theory; Statistical mechanics; Integral equations; Compressibility; Equations of state
CTFR 6410; 6120; Etude theorique; Theorie liquides; Mecanique statistique; Equation integrale; Compressibilite; Equation etat
AN 2003-0043648 PASCAL Full-text
CP Copyright .COPYRGT. 2003 American Institute of Physics. All rights reserved.
CC 001B60D10; Physics; Condensed matter physics, Materials science
001B60A20; Physics; Condensed matter physics, Materials science; Crystallography
CCFR 001B60D10; Physique; Physique de l'etat condense, Science des materiaux
001B60A20; Physique; Physique de l'etat condense, Science des materiaux; Cristallographie
CCES 001B60D10; Fisica; Fisica del estado condensado, Ciencia de los materiales
001B60A20; Fisica; Fisica del estado condensado, Ciencia de los materiales; Cristalografia
PAC 6410; 6120
CT Theoretical study; Liquid theory; Statistical mechanics; Integral equations; Compressibility; Equations of state
CTFR 6410; 6120; Etude theorique; Theorie liquides; Mecanique statistique; Equation integrale; Compressibilite; Equation etat

L144 ANSWER 15 OF 50 PASCAL COPYRIGHT 2010 INIST-CNRS. ALL RIGHTS RESERVED. on STN
ACCESSION NUMBER: 2002-0243537 PASCAL Full-text
COPYRIGHT NOTICE: Copyright .COPYRGT. 2002 American Institute of Physics. All rights reserved.
TITLE (IN ENGLISH): Phase behavior and structure of star -polymer-colloid mixtures
AUTHOR: DZUBIELLA J.; LIKOS C. N.; LOWEN H.
CORPORATE SOURCE: Institut fur Theoretische Physik II, Heinrich-Heine-Universitat Dusseldorf, Universitatsstra<ss>e 1, D-40225 Dusseldorf, Germany
SOURCE: The Journal of chemical physics, (2002-06-01), 116(21), 9518-9530
ISSN: 0021-9606 CODEN: JCPSA6
DOCUMENT TYPE: Journal
BIBLIOGRAPHIC LEVEL: Analytic
COUNTRY: United States
LANGUAGE: English
AVAILABILITY: INIST-127
AB We calculate the phase diagrams of mixtures between hard-sphere colloids and star-polymers of arm numbers f=2,6,32 for different star-polymer-colloid size ratios 0.2<=q<=0.6 using an effective one-component description for the colloids in the presence of the stars. We map the full two-component system onto an effective one-component system by inverting numerically the Ornstein-Zernike equation for binary mixtures, supplemented by the Rogers-Young closure, in the low-colloid density limit. The free energy for the fluid and crystalline phase is calculated by using both hard-sphere perturbation theory and thermodynamic integration of simulation data. We find stable fluid-fluid demixing transitions for low arm numbers f=2,6 above a critical value of the size ratio q.sub.c below preempted by a fcc-solid. For the linear polymer limit, f=2, the critical size ratio is found to be q.sub.c.sim.0.4, in agreement with other approaches to colloid-polymer mixtures. Increasing the arm number, the region of stability of the demixing transition with respect to crystallization of the colloids shrinks, and q.sub.c grows. A comparison between the one- and two-component descriptions that demonstrates the consistency between the two routes is also carried out. .COPYRGT. 2002 American Institute of Physics.
TIEN Phase behavior and structure of star-polymer-colloid mixtures
SO The Journal of chemical physics, (2002-06-01), 116(21),

9518-9530
ISSN: 0021-9606 CODEN: JCPSA6
AB We calculate the phase diagrams of mixtures between hard-sphere colloids and star-polymers of arm numbers f=2,6,32 for different star-polymer-colloid size ratios 0.2<=q<=0.6 using an effective one-component description for the colloids in the presence of the stars. We map the full two-component system onto an effective one-component system by inverting numerically the Ornstein-Zernike equation for binary mixtures, supplemented by the Rogers-Young closure, in the low-colloid density limit. The free energy for the fluid and crystalline phase is calculated by using both hard-sphere perturbation theory and thermodynamic integration of simulation data. We find stable fluid-fluid demixing transitions for low arm numbers f=2,6 above a critical value of the size ratio q.sub.c below preempted by a fcc-solid. For the linear polymer limit, f=2, the critical size ratio is found to be q.sub.c.sim.0.4, in agreement with other approaches to colloid-polymer mixtures. Increasing the arm number, the region of stability of the demixing transition with respect to crystallization of the colloids shrinks, and q.sub.c grows. A comparison between the one- and two-component descriptions that demonstrates the consistency between the two routes is also carried out. .COPYRGT. 2002 American Institute of Physics.
CT Theoretical study; Polymer solutions; Colloids; Mixtures; Liquid structure; Phase diagrams; Free energy; Liquid-liquid transformations; Solid-liquid transformations
CTFR 6125; 6470J; 6470D; 8270D; Etude theorique; Solution polymere; Colloide; Melange; Structure etat liquide; Diagramme phase; Energie libre; Transformation liquide liquide; Transformation solide liquide
AN 2002-02435J37 PASCAL Full-text
CP Copyright .COPYRGT. 2002 American Institute of Physics. All rights reserved.
CC 001B60A25; Physics; Condensed matter physics, Materials science; Crystallography
001B60D70J; Physics; Condensed matter physics, Materials science; Phase transformations
001B60D70D; Physics; Condensed matter physics, Materials science; Phase transformations
001C01J02; Chemistry; General chemistry, Physical chemistry; Colloidal state, Dispersed states
CCFR 001B60A25; Physique; Physique de l'etat condense, Science des materiaux; Cristallographie
001B60D70J; Physique; Physique de l'etat condense, Science des materiaux; Transformations de phase
001B60D70D; Physique; Physique de l'etat condense, Science des materiaux; Transformations de phase
001C01J02; Chimie; Chimie generale, Chimie physique; Etat colloidal, Etats disperses
CCES 001B60A25; Fisica; Fisica del estado condensado, Ciencia de los materiales; Cristalografia
001B60D70J; Fisica; Fisica del estado condensado, Ciencia de los materiales; Transformaciones de fases
001B60D70D; Fisica; Fisica del estado condensado, Ciencia de los materiales; Transformaciones de fases
001C01J02; Quimica; Quimica general, Fisicoquimica; Estado coloidal, Estados dispersados
PAC 6125; 6470J; 6470D; 8270D
CT Theoretical study; Polymer solutions; Colloids; Mixtures; Liquid structure; Phase diagrams; Free energy; Liquid-liquid transformations; Solid-liquid transformations
CTFR 6125; 6470J; 6470D; 8270D; Etude theorique; Solution polymere; Colloide; Melange; Structure etat liquide; Diagramme phase; Energie libre; Transformation liquide liquide; Transformation solide liquide

L144 ANSWER 16 OF 50 PASCAL COPYRIGHT 2010 INIST-CNRS. ALL RIGHTS RESERVED. on STN
ACCESSION NUMBER: 2000-0290283 PASCAL Full-text
COPYRIGHT NOTICE: Copyright .COPYRGT. 2000 American Institute of Physics. All rights reserved.
TITLE (IN ENGLISH): Chaos and fractals in geodesic

	motions around a nonrotating black hole with halos
AUTHOR:	DE MOURA Alessandro P. S.; LETELIER Patricio S.
CORPORATE SOURCE:	Instituto de Fisica Gleb Wataghin, UNICAMP, 13083-970 Campinas Sao Paulo, Brazil; Instituto de Matematica, Estatistica e Ciencia da Computacao, Departamento de Matematica Aplicada, UNICAMP, 13083-9790 Campinas Sao Paulo, Brazil
SOURCE:	Physical review. E, Statistical physics, plasmas, fluids, and related interdisciplinary topics, (2000-06), 61(6), 6506-6516 ISSN: 1063-651X CODEN: PLEEE8
DOCUMENT TYPE:	Journal
BIBLIOGRAPHIC LEVEL:	Analytic
COUNTRY:	United States
LANGUAGE:	English
AVAILABILITY:	INIST-144 E

AB We study the escape dynamics of test particles in general-relativistic gravitational fields generated by core-shell models, which are used in astrophysics as idealized models to observed mass distributions, such as the interior of galaxies. As a general-relativistic core-halo system, we use exact axisymmetric static solutions of Einstein<right single quotation mark>s field equations which represent the superposition of a central Schwarzschild black hole (the core) and multipolar fields from external masses (the halo). We are particularly interested in the occurrence of chaos in the escape, which is characterized by a great sensitivity of the choice of escape by a test particle to initial conditions. The motion of both material particles and zero rest mass particles is considered. Chaos is quantified by the fractal dimension of the boundary between the basins of the different escapes. We find chaos in the motion of both material particles and null geodesics, but its intensity depends strongly on the halo. We have found for all the cases we have considered that massless particles are less chaotic than massive particles.

TIEN Chaos and fractals in geodesic motions around a nonrotating black hole with halos

SO Physical review. E, Statistical physics, plasmas, fluids, and related interdisciplinary topics, (2000-06), 61(6), 6506-6516
ISSN: 1063-651X CODEN: PLEEE8

AB We study the escape dynamics of test particles in general-relativistic gravitational fields generated by core-shell models, which are used in astrophysics as idealized models to observed mass distributions, such as the interior of galaxies. As a general-relativistic core-halo system, we use exact axisymmetric static solutions of Einstein<right single quotation mark>s field equations which represent the superposition of a central Schwarzschild black hole (the core) and multipolar fields from external masses (the halo). We are particularly interested in the occurrence of chaos in the escape, which is characterized by a great sensitivity of the choice of escape by a test particle to initial conditions. The motion of both material particles and zero rest mass particles is considered. Chaos is quantified by the fractal dimension of the boundary between the basins of the different escapes. We find chaos in the motion of both material particles and null geodesics, but its intensity depends strongly on the halo. We have found for all the cases we have considered that massless particles are less chaotic than massive particles.

CT Theoretical study; Computerized simulation; Black holes; Schwarzschild metric; Chaos; Fractals; Einstein field equations

CTFR 0545D; 9510F; 9530S; 0545P; Etude theorique; Simulation ordinateur; Trou noir; Metrique Schwarzschild; Chaos; Fractale; Equation champ Einstein

AN 2000-0290283 PASCAL Full-text

CP Copyright .COPYRGT. 2000 American Institute of Physics. All rights reserved.

CC 001B00E45D; Physics; Statistical physics
001E03A10F; Universe sciences; Astronomy; Astrophysics
001E03A30S; Universe sciences; Astronomy; Astrophysics
001B00E45A; Physics; Statistical physics

CCFR 001B00E45D; Physique; Physique statistique

001E03A10F; Sciences de l'univers; Astronomie; Astrophysique
001E03A30S; Sciences de l'univers; Astronomie; Astrophysique
001B00E45A; Physique; Physique statistique
CCES 001B00E45D; Fisica; Fisica estadistica
001E03A10F; Ciencias del universo; Astronomia; Astrofisica
001E03A30S; Ciencias del universo; Astronomia; Astrofisica
001B00E45A; Fisica; Fisica estadistica
PAC 0545D; 9510F; 9530S; 0545P
CT Theoretical study; Computerized simulation; Black holes; Schwarzschild metric; Chaos; Fractals; Einstein field equations
CTFR 0545D; 9510F; 9530S; 0545P; Etude theorique; Simulation ordinateur; Trou noir; Metrique Schwarzschild; Chaos; Fractale; Equation champ Einstein

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ACCESSION NUMBER: 2000-0255462 PASCAL Full-text
COPYRIGHT NOTICE: Copyright .COPYRGT. 2000 INIST-CNRS. All rights reserved.
TITLE (IN ENGLISH): Well-defined, model long chain branched polyethylene. 1. Synthesis and characterization
AUTHOR: HADJICHRISTIDIS N.; XENIDOU M.; IATROU H.; PITSIKALIS M.; POULOS Y.; AVGEROPOULOS A.; SIOULA S.; PARASKEVA S.; VELIS G.; LOHSE D. J.; SCHULZ D. N.; FETTERS L. J.; WRIGHT P. J.; MENDELSON R. A.; GARCIA-FRANCO C. A.; SUN T.; RUFF C. J.
CORPORATE SOURCE: Department of Chemistry, University of Athens, Panepistimiopolis, Zografou, 157 71 Athens, Greece; Corporate Strategic Research Labs, ExxonMobil Research & Engineering Co., Annandale, New Jersey 08801, United States; Exxon Chemical Company, 5200 Bayway Drive, Baytown, Texas 77520-2101, United States
SOURCE: Macromolecules, (2000), 33(7), 2424-2436
ISSN: 0024-9297 CODEN: MAMOBX
DOCUMENT TYPE: Journal
BIBLIOGRAPHIC LEVEL: Analytic
COUNTRY: United States
LANGUAGE: English
NOTE: 1/2 p. ref. et notes
AVAILABILITY: INIST-13789, 354000082194050230
AB We describe the synthesis and characterization of a number of polymers with well-defined structures that serve as models for polyethylene with long chain branching. All of them have been made by using anionic polymerization techniques and controlled chlorosilane chemistry to give nearly monodisperse polybutadienes with precise control of the number, length, and placement of long (M.sub.w > 1500 g/mol) branches on each chain. This was followed by hydrogenation to give saturated polymers with the same well-defined long chain branching and the local structure of a typical linear low-density polyethylene. That is, both the backbones and the long branches had 17-25 ethyl branches per 1000 total carbons. Among the structures made were some with no long branches ("linears"), some with a single long branch (" stars"), others with exactly two branch points (the α-ω type, "H's", "super-H's", and "pom-poms"), and some with several long branches randomly distributed along the backbone ("combs"). Essentially all types of branching from a linear backbone can be made by the techniques described herein. While linear and symmetrical star models of polyethylene have been made previously, the other structures are the first examples of polyethylene models with multiple branches and precise control of the molecular architecture. We use the results given here to discuss how long chain branching can be detected in polyethylene. We also show how the branching structure controls chain dimensions. The Zimm-Stockmayer model works well to describe the sizes of the lightly branched molecules, but its predictions are too small for those with many long branches. This

is presumably due to crowding of the branches. The rheological properties of these polymers will be described in subsequent publications.

TIEN Well-defined, model long chain branched polyethylene. 1. Synthesis and characterization

SO Macromolecules, (2000), 33(7), 2424-2436
ISSN: 0024-9297 CODEN: MAMOBX

AB We describe the synthesis and characterization of a number of polymers with well-defined structures that serve as models for polyethylene with long chain branching. All of them have been made by using anionic polymerization techniques and controlled chlorosilane chemistry to give nearly monodisperse polybutadienes with precise control of the number, length, and placement of long (M.sub.w > 1500 g/mol) branches on each chain. This was followed by hydrogenation to give saturated polymers with the same well-defined long chain branching and the local structure of a typical linear low-density polyethylene. That is, both the backbones and the long branches had 17-25 ethyl branches per 1000 total carbons. Among the structures made were some with no long branches ("linears"), some with a single long branch (" stars"), others with exactly two branch points (the α-ω type, "H's", "super-H's", and "pom-poms"), and some with several long branches randomly distributed along the backbone ("combs"). Essentially all types of branching from a linear backbone can be made by the techniques described herein. While linear and symmetrical star models of polyethylene have been made previously, the other structures are the first examples of polyethylene models with multiple branches and precise control of the molecular architecture. We use the results given here to discuss how long chain branching can be detected in polyethylene. We also show how the branching structure controls chain dimensions. The Zimm-Stockmayer model works well to describe the sizes of the lightly branched molecules, but its predictions are too small for those with many long branches. This is presumably due to crowding of the branches. The rheological properties of these polymers will be described in subsequent publications.

CT Butadiene polymer; Monodispersed polymer; Star polymer; Comb polymer; Preparation; Anionic polymerization; Chemical modification; Hydrogenation; Butadiene derivative polymer; Model compound; Polyethylene; Chemical solution; Conformation; Molecular weight viscosity relationship; Experimental study

CTFR Butadiene polymere; Polymere monodisperse; Polymere etoile; Polymere peigne; Preparation; Polymerisation anionique; Modification chimique; Hydrogenation; Butadiene derive polymere; Compose modele; Ethylene polymere; Solution chimique; Conformation; Relation viscosite masse moleculaire; Etude experimentale; Butadiene hydrogene polymere

CTES Butadieno polimero; Polimero monodispersado; Polimero estrella; Polimero peine; Preparacion; Polimerizacion anionica; Modificacion quimica; Hidrogenacion; Butadieno derivado polimero; Compuesto modelo; Etileno polimero; Solucion quimica; Conformacion; Relacion viscosidad masa molecular; Estudio experimental

AN 2000-0255462 PASCAL Full-text

CC 001D09D02B; Applied sciences; Physicochemistry of polymers, Macromolecular chemistry, Materials science; Organic polymers

CCFR 001D09D02B; Sciences appliquees; Physicochimie des polymeres, Chimie macromoleculaire, Science des materiaux; Polymeres organiques

CCES 001D09D02B; Ciencias aplicadas; Fisicoquimica de los polimeros, Quimica macromolecular, Ciencia de los materiales; Polimeros organicos

CT Butadiene polymer; Monodispersed polymer; Star polymer; Comb polymer; Preparation; Anionic polymerization; Chemical modification; Hydrogenation; Butadiene derivative polymer; Model compound; Polyethylene; Chemical solution; Conformation; Molecular weight viscosity relationship; Experimental study

CTFR Butadiene polymere; Polymere monodisperse; Polymere etoile; Polymere peigne; Preparation; Polymerisation anionique; Modification chimique; Hydrogenation; Butadiene derive polymere; Compose modele; Ethylene polymere; Solution

chimique; Conformation; Relation viscosite masse moleculaire; Etude experimentale; Butadiene hydrogene polymere
CTES Butadieno polimero; Polimero monodispersado; Polimero estrella; Polimero peine; Preparacion; Polimerizacion anionica; Modificacion quimica; Hidrogenacion; Butadieno derivado polimero; Compuesto modelo; Etileno polimero; Solucion quimica; Conformacion; Relacion viscosidad masa molecular; Estudio experimental
BT Branched polymer
BTFR Polymere ramifie
BTES Polimero ramificado

L144 ANSWER 18 OF 50 PASCAL COPYRIGHT 2010 INIST-CNRS. ALL RIGHTS RESERVED. on STN
ACCESSION NUMBER: 2001-0007151 PASCAL Full-text
COPYRIGHT NOTICE: Copyright .COPYRGT. 2001 INIST-CNRS. All rights reserved.
TITLE (IN ENGLISH): A new equation of state for the hard-sphere chain fluids based on the thermodynamic perturbation theory and the multidensity integral equation
AUTHOR: MIN SUN YEOM; JAEEON CHANG; HWAYONG KIM
CORPORATE SOURCE: School of Chemical Engineering, Seoul National University, Seoul 151-742, Korea, Republic of; Division of Chemistry and Molecular Engineering, Seoul National University, Seoul 151-742, Korea, Republic of
SOURCE: Fluid phase equilibria, (2000), 173(2), 177-187, 31 refs.
ISSN: 0378-3812 CODEN: FPEQDT
DOCUMENT TYPE: Journal
BIBLIOGRAPHIC LEVEL: Analytic
COUNTRY: Netherlands
LANGUAGE: English
AVAILABILITY: INIST-17569, 354000092994140030
AB New equations of state for the freely jointed hard sphere chain fluids are developed. The equations of state are based on Wertheim's thermodynamic perturbation theory or the statistical associating fluid theory. In developing the new equations of state we use the contact values of the radial distribution functions (RDF) of equimolar mixtures of monomer and dimer fluids as an intermediate reference system. For this purpose two expressions for the contact values of the RDF are adopted from the multidensity Ornstein-Zernike integral equation theory and the Monte Carlo simulation results. The radial distribution functions consist of a monomer term, which is the Carnahan-Starling or the Percus-Yevick type, and a bond contribution term. We compare the radial distribution functions from the theory with the Monte Carlo simulation results for the monomer-dimer mixture, and found that they are in a good agreement with each other. We also compare the equations of state with the simulation results for the compressibility factor of the hard sphere chain fluids. The predicted compressibility factors for hard-sphere chain fluids are in a good agreement with simulation data especially at high densities, and the accuracy of the theories is comparable to the TPT-D theory.
TIEN A new equation of state for the hard-sphere chain fluids based on the thermodynamic perturbation theory and the multidensity integral equation
SO Fluid phase equilibria, (2000), 173(2), 177-187, 31 refs.
ISSN: 0378-3812 CODEN: FPEQDT
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CT Theoretical study; Equations of state; Hard sphere model; Thermodynamic model; Perturbation theory; Monte Carlo method; Integral equation; Thermodynamic properties; Compressibility factor

CTFR Etude theorique; Equation etat; Modele sphere dure; Modele thermodynamique; Theorie perturbation; Methode Monte Carlo; Equation integrale; Propriete thermodynamique; Facteur compressibilite

CTES Estudio teorico; Ecuacion de estado; Modelo esfera dura; Modelo termodinamico; Teoria perturbacion; Metodo Monte Carlo; Ecuacion integral; Propiedad termodinamica; Factor compresibilidad

AN 2001-0007151 PASCAL Full-text

CC 001C01E01; Chemistry; General chemistry, Physical chemistry; Thermodynamics

CCFR 001C01E01; Chimie; Chimie generale, Chimie physique; Thermodynamique

CCES 001C01E01; Quimica; Quimica general, Fisicoquimica; Termodinamica

CT Theoretical study; Equations of state; Hard sphere model; Thermodynamic model; Perturbation theory; Monte Carlo method; Integral equation; Thermodynamic properties; Compressibility factor

CTFR Etude theorique; Equation etat; Modele sphere dure; Modele thermodynamique; Theorie perturbation; Methode Monte Carlo; Equation integrale; Propriete thermodynamique; Facteur compressibilite

CTES Estudio teorico; Ecuacion de estado; Modelo esfera dura; Modelo termodinamico; Teoria perturbacion; Metodo Monte Carlo; Ecuacion integral; Propiedad termodinamica; Factor compresibilidad

L144 ANSWER 19 OF 50 PASCAL COPYRIGHT 2010 INIST-CNRS. ALL RIGHTS RESERVED. on STN

ACCESSION NUMBER: 1998-0378817 PASCAL Full-text

TITLE (IN ENGLISH): Conformation of a polymer chain near the solvent critical region. I. The integral equation theory

AUTHOR: VASILEVSKAYA Valentina V.; KHALATUR Pavel G.; KHOKHLOV Alexei R.

CORPORATE SOURCE: Nesmeyanov Institute of Organoelement Compounds, Russian Academy of Sciences, Moscow 117823, Russia

SOURCE: The Journal of chemical physics, (1998-08-22), 109(12), 5108-5118 ISSN: 0021-9606 CODEN: JCPSA6

DOCUMENT TYPE: Journal

BIBLIOGRAPHIC LEVEL: Analytic

COUNTRY: United States

LANGUAGE: English

AVAILABILITY: INIST-127

AB Using the polymer reference interaction site model (PRISM) approximation and hybrid self-consistent MC/RISM method which combines the traditional Monte Carlo (MC)

simulation with the numerical solution of the site-site Ornstein- Zernike-type (RISM) integral equation , we study solvent-mediated interactions and the conformational behavior of a single flexible-chain polymer immersed in a monoatomic solvent. The PRISM theory and the self-consistent MC/RISM method predict that in the vicinity of the solvent critical point there is an effective intrachain attraction between monomeric units of the chain. However, the strongly fluctuating solvent can induce significant conformational changes only if there is rather strong attraction between polymer segments and solvent particles. At such conditions, the collapse transition of long chains is possible near the solvent critical point. The equilibrium microstructure of the chain is modulated as a result of the competition between the intrachain short-range excluded volume repulsion and the nonlocal solvent-mediated attraction. For the dilute polymer solution without polymer-solvent attraction, the MC/RISM calculations show that the flexible polymer chain shrinks when approaching the critical point of the solvent. In this case, under the action of indirect intrachain attraction, long chain can take a specific winding conformation, with the fractal structure which is rather close to the globular structure..COPYRGT. 1998 American Institute of Physics.

TIEN Conformation of a polymer chain near the solvent critical region. I. The integral equation theory

SO The Journal of chemical physics, (1998-09-22), 109(12), 5108-5118
ISSN: 0021-9606 CODEN: JCPSA6

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CT Theoretical study; Polymer solutions; Digital simulation; Macromolecules; Monte Carlo methods; Liquid theory

CTFR 6125H; 8370G; 3620E; Etude theorique; Solution polymere; Simulation numerique; Macromolecule; Methode Monte Carlo; Theorie liquides

AN 1998-0378817 PASCAL Full-text

CP Copyright .COPYRGT. 1998 American Institute of Physics. All rights reserved.

CC 001B60A25H; Physics; Condensed matter physics, Materials science; Crystallography
001B80C70G; Physics; Rheology
001B30F20E; Physics; Atomic physics, Molecular physics; Special atoms, Special molecules

CCFR 001B60A25H; Physique; Physique de l'etat condense, Science des materiaux; Cristallographie
001B80C70G; Physique; Rheologie
001B30F20E; Physique; Physique atomique, Physique moleculaire; Atomes particuliers, Molecules particulieres

CCES 001B60A25H; Fisica; Fisica del estado condensado, Ciencia de los materiales; Cristalografia
001B80C70G; Fisica; Reologia
001B30F20E; Fisica; Fisica atomica, Fisica molecular; Atomos especializados, Moleculas especializadas

PAC 6125H; 8370G; 3620E

CT Theoretical study; Polymer solutions; Digital

simulation; Macromolecules; Monte Carlo methods; Liquid theory
CFFR 6125H; 8370G; 3620E; Etude theorique; Solution polymere; Simulation numerique; Macromolecule; Methode Monte Carlo; Theorie liquides

L144 ANSWER 20 OF 50 PASCAL COPYRIGHT 2010 INIST-CNRS. ALL RIGHTS RESERVED. on STN
ACCESSION NUMBER: 1998-0328925 PASCAL Full-text
COPYRIGHT NOTICE: Copyright .COPYRGT. 1998 American Institute of Physics. All rights reserved.
TITLE (IN ENGLISH): Collapse and Fragmentation Models of Prolate Molecular Cloud Cores. II. Initial Differential Rotation
AUTHOR: SIGALOTTI Leonardo Di G.
CORPORATE SOURCE: Instituto Nacional de Investigaciones Nucleares, ININ, Apartado Postal 18-1027, Mexico 11801 D. F., Mexico
SOURCE: The Astrophysical journal, (1998-05-01), 498(1), 236-245 ISSN: 0004-637X CODEN: ASJOAB
DOCUMENT TYPE: Journal
BIBLIOGRAPHIC LEVEL: Analytic
COUNTRY: United States
LANGUAGE: English
AVAILABILITY: INIST-512
AB The prevalence of companions to pre-main-sequence stars and the emerging observational evidence for binary and multiple protostellar condensations suggest that fragmentation during protostellar collapse is a mechanism that may occur frequently in the star formation process. Here a second-order accurate hydrodynamic code has been used to investigate the gravitational (postmagnetic) collapse and fragmentation of low-mass (.eqvsim.1 M.sun.), small (.eqvsim.0.05 pc) molecular cloud cores, starting from moderately centrally condensed (Gaussian), prolate (2:1 and 4:1 axial ratios) configurations with varying thermal energies (α) and degrees of differential rotation (v = 13 and 23). To facilitate comparisons with previous collapse calculations of uniformly rotating prolate cloud cores (Sigalotti & Klapp), all the models were made to start with a ratio of rotational to gravitational energy of β .sim. 0.036. The results indicate that prolate clouds are highly susceptible to binary fragmentation and that with respect to uniformly rotating initial conditions, differential rotation plays no role in either determining or enhancing fragmentation in initially slowly rotating clouds. In contrast to the fragmentation criteria previously established by Boss and Myhill, the results also indicate that clouds with α = 0.56 and varied prolateness collapse in a similar fashion, producing intermediate central condensations of oblate spheroidal shape before fragmenting into either a binary (2:1 clouds) or multiple protostellar core (4:1 clouds). The models with α <= 0.45 all produced binary systems after having formed intermediate central condensations, which might be of prolate ellipsoidal (2:1 clouds) or narrow cylindrical (4:1 clouds) shape. The mass and separation of the binary fragments increase with decreasing α and with an increase of both the degree of differential rotation and the cloud elongation. The results imply that for initial low β, the degree of cloud prolateness has a greater effect on the outcome than does differential rotation.
TIEN Collapse and Fragmentation Models of Prolate Molecular Cloud Cores. II. Initial Differential Rotation
SO The Astrophysical journal, (1998-05-01), 498(1), 236-245 ISSN: 0004-637X CODEN: ASJOAB
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CT Theoretical study; Interstellar molecular clouds; Gravitational collapse; Star formation; Binary stars; Hydrodynamics
CTFR 9710B; 9780; 9862M; 9530L; Etude theorique; Nuage moleculaire interstellaire; Effondrement gravitationnel; Formation stellaire; Binaire; Hydrodynamique
AN 1998-0328925 PASCAL Full-text
CP Copyright .COPYRGT. 1998 American Institute of Physics. All rights reserved.
CC 001E03C10B; Universe sciences; Astronomy; Stars
001E03C80; Universe sciences; Astronomy; Stars
001E03D62M; Universe sciences; Astronomy; Galaxies
001E03A30L; Universe sciences; Astronomy; Astrophysics
CCFR 001E03C10B; Sciences de l'univers; Astronomie; Etoiles
001E03C80; Sciences de l'univers; Astronomie; Etoiles
001E03D62M; Sciences de l'univers; Astronomie; Galaxies
001E03A30L; Sciences de l'univers; Astronomie; Astrophysique
CCES 001E03C10B; Ciencias del universo; Astronomia; Estrellas
001E03C80; Ciencias del universo; Astronomia; Estrellas
001E03D62M; Ciencias del universo; Astronomia; Galaxias
001E03A30L; Ciencias del universo; Astronomia; Astrofisica
PAC 9710B; 9780; 9862M; 9530L
CT Theoretical study; Interstellar molecular clouds; Gravitational collapse; Star formation; Binary stars; Hydrodynamics
CTFR 9710B; 9780; 9862M; 9530L; Etude theorique; Nuage moleculaire interstellaire; Effondrement gravitationnel; Formation stellaire; Binaire; Hydrodynamique

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ACCESSION NUMBER:	1995-0206670 PASCAL Full-text
COPYRIGHT NOTICE:	Copyright .COPYRGT. 1995 American Institute of Physics. All rights reserved.
TITLE (IN ENGLISH):	Description of core-excitation spectra by the open-shell electron-attachment equation -of-motion coupled cluster method
AUTHOR:	NOOIJEN Marcel; BARTLETT Rodney J.
CORPORATE SOURCE:	Quantum Theory Project, University of Florida, Gainesville, Florida 32611-8435
SOURCE:	Journal of Chemical Physics, (1995-05-01), 102(17), 6735-6756 ISSN: 0021-9606 CODEN: JCPSA6
DOCUMENT TYPE:	Journal
BIBLIOGRAPHIC LEVEL:	Analytic
COUNTRY:	United States
LANGUAGE:	English
AVAILABILITY:	INIST-127

AB The theoretical description of core -excitation spectra presents a difficult problem due to the large excitation energies involved, and the extensive relaxation effects that occur upon promotion of a core electron to a valence or Rydberg level. For this reason we follow a two-step procedure to evaluate core-excitation energies. We start from a coupled cluster singles-doubles (CCSD) description of the core ion to include the large relaxation effects, followed by adding an extra electron to the core-ionized state to obtain the various core -excited states of the neutral by using the open-shell electron attachment equation-of-motion coupled cluster method (EA-EOMCC). An important feature of the approach is that the term values, the core-excitation energies relative to the relevant core-ionization potential, are calculated directly and this allows us to achieve high accuracy. This work describes the extension of the EA-EOMCC method to open- shell reference states and we make applications to a number of molecular systems. The assignment of recently obtained high-resolution core-excitation spectra for acetylene and ethylene is discussed, and we compare our open-shell EA-EOMCC results to results obtained from closed-shell EA-EOMCC calculations based on the equivalent core ion corresponding to the core-excited molecular system. Special attention is paid to the singlet-triplet splitting for core-excited states, and we address the multireference character of core-ionized and core-excited states for molecules that contain symmetry-equivalent heavy nuclei, which relates to a persistent controversy in the literature concerning localized versus delocalized core holes. .COPYRGT. 1995 American Institute of Physics.

TIEN Description of core-excitation spectra by the open-shell electron-attachment equation-of-motion coupled cluster method

SO Journal of Chemical Physics, (1995-05-01), 102(17), 6735-6756
ISSN: 0021-9606 CODEN: JCPSA6

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CT Theoretical study; Core levels; Inner-shell ionization; Electron attachment; Equations of motion; Relaxation; Energy dependence; Rydberg states; Ionization potential

CTFR Etude theorique; 3115D; 3230R; Niveau coeur; Ionisation couche interne; Attachement electron; Equation mouvement; Relaxation; Dependance energie; Etat Rydberg; Potentiel ionisation

AN 1995-0206670 PASCAL Full-text

CC 001B30A15D; Physics; Atomic physics, Molecular physics; Electronic structure, Theory
001B30B30R; Physics; Atomic physics, Molecular physics; Atomic properties, Interactions of atoms with photons

CCFR 001B30A15D; Physique; Physique atomique, Physique moleculaire; Structure electronique, Theorie
001B30B30R; Physique; Physique atomique, Physique moleculaire; Proprietes atomiques, Interactions des atomes avec les photons

CCES 001B30A15D; Fisica; Fisica atomica, Fisica molecular; Estructura electronica, Teoria
001B30B30R; Fisica; Fisica atomica, Fisica molecular; Propiedades atomicas, Interacciones atomos con los fotones
PAC 3115D; 3230R
CT Theoretical study; Core levels; Inner-shell ionization; Electron attachment; Equations of motion; Relaxation; Energy dependence; Rydberg states; Ionization potential
CTFR Etude theorique; 3115D; 3230R; Niveau coeur; Ionisation couche interne; Attachement electron; Equation mouvement; Relaxation; Dependance energie; Etat Rydberg; Potentiel ionisation

L144 ANSWER 22 OF 50 PASCAL COPYRIGHT 2010 INIST-CNRS. ALL RIGHTS RESERVED. on STN
ACCESSION NUMBER: 1994-0369797 PASCAL Full-text
COPYRIGHT NOTICE: Copyright .COPYRGT. 1994 INIST-CNRS. All rights reserved.
TITLE (IN ENGLISH): Successive hierarchical fragmentation of centrally condensed protostellar cores
AUTHOR: SIGALOTTI L. D. G.
CORPORATE SOURCE: SISSA, insternational school advanced studies, 34014 Trieste, Italy
SOURCE: Astronomy and astrophysics : (Berlin), (1994), 283(3), 858-866, 27 refs.
ISSN: 0004-6361 CODEN: AAEJAF
DOCUMENT TYPE: Journal
BIBLIOGRAPHIC LEVEL: Analytic
COUNTRY: Germany, Federal Republic of
LANGUAGE: English
AVAILABILITY: INIST-14176, 354000094952680200
AB A second-order accurate, three-dimensional hydrodynamic code has been used to model the gravitational collapse and fragmentation of a centrally condensed, differentially rotating protostellar core. The initial model is assumed to have a moderate amplitude (a = 0.3), m = 2 density perturbation with ratios of thermal and rotational to gravitational energy α.sub.i .sim. 0.15 and β.sub.i .sim. 0.17, respectively. Formation of a hierarchical multiple protostellar core is observed to occur during the isothermal collapse only if the initial conditions include small internal radial motions. Collapse from rest results only in the formation of a binary system
TIEN Successive hierarchical fragmentation of centrally condensed protostellar cores
SO Astronomy and astrophysics : (Berlin), (1994), 283(3), 858-866, 27 refs.
ISSN: 0004-6361 CODEN: AAEJAF
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CT Hierarchical system; Star formation; Gravitational collapse; Hydrodynamics; Molecular clouds; Fragmentation
AN 1994-0369797 PASCAL Full-text
CP Copyright .COPYRGT. 1994 INIST-CNRS. All rights reserved.
CC 001E03C10B; Universe sciences; Astronomy; Stars
CCFR 001E03C10B; Sciences de l'univers; Astronomie; Etoiles
CCES 001E03C10B; Ciencias del universo; Astronomia; Estrellas
CT Hierarchical system; Star formation; Gravitational collapse; Hydrodynamics; Molecular clouds; Fragmentation
CTFR Systeme hierarchise; Formation stellaire; Effondrement gravitationnel; Hydrodynamique; Nuage moleculaire; Fragmentation
CTES Sistema jerarquizado

L144 ANSWER 23 OF 50 PASCAL COPYRIGHT 2010 INIST-CNRS. ALL RIGHTS RESERVED. on STN
ACCESSION NUMBER: 1994-0468190 PASCAL Full-text
COPYRIGHT NOTICE: Copyright .COPYRGT. 1994 INIST-CNRS. All rights reserved.
TITLE (IN ENGLISH): Universality of critical phenomena in complex fluids
AUTHOR: CHEN S. H.; ROUCH J.; TARTAGLIA P.
GUNTON J. (ed.); OHTA T. (ed.); ONUKI A. (ed.)
CORPORATE SOURCE: MIT, cent. materials sci. eng., dep. nuclear eng., Cambridge MA 02139, United States; Univ. Bordeaux I, cent. physique moleculaire optique Hertzienne, 33405 Talence, France
Lehigh univ., coll. arts sci., Bethlehem PA 18015-3075, United States
SOURCE: Physica. A, (1994), 204(1-4), 134-151, 25 refs.
Conference: Phase transitions and pattern formation. Symposium, Fukuoka (Japan), 27 Mar 1994
ISSN: 0378-4371 CODEN: PHYADX
DOCUMENT TYPE: Journal; Conference
BIBLIOGRAPHIC LEVEL: Analytic
COUNTRY: Netherlands
LANGUAGE: English
AVAILABILITY: INIST-145 A, 354000025569680090
AB A theory for static and dynamic light scattering from micellar and microemulsion systems near the critical point is given which incorporates the universality of critical phenomena in fluids and the finite size effect of the constituent particles in the system. This theory reduces to the Ornstein-Zernike formula for the static light scattering intensity and the Kawasaki mode-coupling result for the line width of the dynamic light scattering in the limit when the size of the particles is vanishingly small compared to the wavelength of the probing light. When this is not the case the critical dynamics shows considerable deviation from the mode-coupling theory and the order parameter fluctuation exhibits non-exponential relaxation
SO Physica. A, (1994), 204(1-4), 134-151, 25 refs.
Conference: Phase transitions and pattern formation. Symposium, Fukuoka (Japan), 27 Mar 1994
ISSN: 0378-4371 CODEN: PHYADX
AB A theory for static and dynamic light scattering from micellar and microemulsion systems near the critical point is given which incorporates the universality of critical phenomena in fluids and the finite size effect of the constituent particles in the system. This theory reduces to the Ornstein-Zernike formula for the static light scattering intensity and the Kawasaki mode-coupling result for the line width of the dynamic light scattering in the limit when the size of the particles is vanishingly small compared to the wavelength of the probing light. When this is not the case the critical dynamics shows considerable deviation from the mode-coupling theory and the order parameter fluctuation exhibits non-exponential relaxation
CT Critical phenomena; Microemulsions; Micellar solution; Light scattering; Finite size effect; Phase transitions; Phase diagrams; Fractal system; Spherical particle; Correlation functions; Correlation length; Universality
CTFR Phenomene critique; Microemulsion; Solution micellaire; Diffusion lumiere; Effet taille finie; Transition phase; Diagramme phase; Systeme fractal; Particule spherique; Fonction correlation; Longueur correlation; 0570J; 0570F; 0570C; 8270K; Fluide complexe; Universalite
CTES Solucion micelar; Efecto dimension finita; Transicion fase; Sistema fractal; Particula esferica
AN 1994-0468190 PASCAL Full-text
CP Copyright .COPYRGT. 1994 INIST-CNRS. All rights reserved.
CC 001B00E70J; Physics; Statistical physics, Thermodynamics
001B00E70F; Physics; Statistical physics, Thermodynamics
001B00E70C; Physics; Statistical physics, Thermodynamics
001C01J04; Chemistry; General chemistry, Physical chemistry; Colloidal state, Dispersed systems
CCFR 001B00E70J; Physique; Physique statistique, Thermodynamique

001B00E70F; Physique; Physique statistique, Thermodynamique
001B00E70C; Physique; Physique statistique, Thermodynamique
001C01J04; Chimie; Chimie generale, Chimie physique; Etat colloidal, Etats disperses
CCES 001B00E70J; Fisica; Fisica estadistica, Termodinamica
001B00E70F; Fisica; Fisica estadistica, Termodinamica
001B00E70C; Fisica; Fisica estadistica, Termodinamica
001C01J04; Quimica; Quimica general, Fisicoquimica; Estado coloidal, Estados dispersados
PAC 0570J; 0570F; 0570C; 8270K
CT Critical phenomena; Microemulsions; Micellar solution; Light scattering; Finite size effect; Phase transitions; Phase diagrams; Fractal system; Spherical particle; Correlation functions; Correlation length; Universality
CTFR Phenomene critique; Microemulsion; Solution micellaire; Diffusion lumiere; Effet taille finie; Transition phase; Diagramme phase; Systeme fractal; Particule spherique; Fonction correlation; Longueur correlation; 0570J; 0570F; 0570C; 8270K; Fluide complexe; Universalite
CTES Solucion micelar; Efecto dimension finita; Transicion fase; Sistema fractal; Particula esferica

L144 ANSWER 24 OF 50 PASCAL COPYRIGHT 2010 INIST-CNRS. ALL RIGHTS RESERVED. on STN

ACCESSION NUMBER: 1993-0077074 PASCAL Full-text
TITLE (IN ENGLISH): Structure and thermodynamics of mixtures of hard D-dimensional spheres : overlap volume function approach
AUTHOR: GONZALEZ L. E.; GONZALEZ D. J.; SILBERT M.
CORPORATE SOURCE: Univ. Valladolid, fac. cienc., dep. fisica teorica, 47011 Valladolid, Spain
SOURCE: (The) Journal of chemical physics, (1992), 97(7), 5132-5141, 22 refs.
ISSN: 0021-9606 CODEN: JCPSA6
DOCUMENT TYPE: Journal
BIBLIOGRAPHIC LEVEL: Analytic
COUNTRY: United States
LANGUAGE: English
AVAILABILITY: INIST-127, 354000031833900590

AB A very simple ansatz for the partial direct correlation functions of binary mixtures of hard D-dimensional spheres, which allows a unified treatment of both the odd and even space dimensionalities D and reduces, for D=1 and D=3, to the Percus-Yevick theory is presented in this paper. A generalized Carnahan-Starling equation of state is proposed, which is in excellent agreement with the available computer simulation results. Finally, two generalized Verlet-Weis procedures for the partial pair distribution functions g.sub.i.sub.j(r) are proposed

TIEN Structure and thermodynamics of mixtures of hard D-dimensional spheres : overlap volume function approach
SO (The) Journal of chemical physics, (1992), 97(7), 5132-5141, 22 refs.
ISSN: 0021-9606 CODEN: JCPSA6

AB A very simple ansatz for the partial direct correlation functions of binary mixtures of hard D-dimensional spheres, which allows a unified treatment of both the odd and even space dimensionalities D and reduces, for D=1 and D=3, to the Percus-Yevick theory is presented in this paper. A generalized Carnahan-Starling equation of state is proposed, which is in excellent agreement with the available computer simulation results. Finally, two generalized Verlet-Weis procedures for the partial pair distribution functions g.sub.i.sub.j(r) are proposed

CT Thermodynamic properties; Correlation function; Binary mixture; Hard sphere model; Dimensionality; Pair distribution function; Equations of state; Semiempirical method; Structure factor; Stacking sequence; Scaling law; Theoretical study; Ornstein Zernike equation
CTFR Propriete thermodynamique; Fonction correlation; Melange binaire; Modele sphere dure; Dimensionnalite; Fonction distribution paire; Equation etat; Methode

semiempirique; Facteur structure; Mode empilement; Loi echelle; Etude **theorique**; **Equation Ornstein Zernike**

CTES Propiedad termodinamica; **Funcion** correlacion; Mezcla binaria; **Modelo** esfera dura; Dimensionalidad; **Funcion** distribucion par; Ecuacion de estado; Metodo semiempirico; Factor estructura; Modo apilamiento; Ley escala; Estudio teorico; Ecuacion Ornstein Zernike

AN 1993-0077074 PASCAL Full-text

CC 001B10D07; Physics; Condensed matter physics, Materials science; Equations of state, Phase equilibria, Phase transformations

CCFR 001B10D07; Physique; Physique de l'etat condense, Science des materiaux; Equations d'etat, Equilibres de phases, Transformations de phase

CCES 001B10D07; Fisica; Fisica del estado condensado, Ciencia de los materiales; Ecuaciones de estado, Equilibrios de fases, Transformaciones de fases

CT Thermodynamic properties; Correlation **function**; Binary mixture; Hard sphere **model**; Dimensionality; Pair distribution **function**; **Equations** of state; Semiempirical method; Structure factor; Stacking sequence; Scaling law; **Theoretical** study; **Ornstein Zernike equation**

CTFR Propriete thermodynamique; Fonction correlation; Melange binaire; **Modele** sphere dure; Dimensionnalite; Fonction distribution paire; **Equation** etat; Methode semiempirique; Facteur structure; Mode empilement; Loi echelle; Etude **theorique**; **Equation Ornstein Zernike**

CTES Propiedad termodinamica; **Funcion** correlacion; Mezcla binaria; **Modelo** esfera dura; Dimensionalidad; **Funcion** distribucion par; Ecuacion de estado; Metodo semiempirico; Factor estructura; Modo apilamiento; Ley escala; Estudio teorico; Ecuacion Ornstein Zernike

L144 ANSWER 25 OF 50 PASCAL COPYRIGHT 2010 INIST-CNRS. ALL RIGHTS RESERVED. on STN

ACCESSION NUMBER: 1989-0167860 PASCAL Full-text

TITLE (IN ENGLISH): Direct correlation **functions** for negatively non-additive hard spheres in the PY approximation

AUTHOR: GAZZILLO D.

CORPORATE SOURCE: Univ. Venezia, dip. chimica fisica, Venezia 30123, Italy

SOURCE: Molecular Physics, (1988), 64(3), 535-556, 18 refs. ISSN: 0026-8976 CODEN: MOPHAM

DOCUMENT TYPE: Journal

BIBLIOGRAPHIC LEVEL: Analytic

COUNTRY: United Kingdom

LANGUAGE: English

AVAILABILITY: CNRS-8663

TIEN Direct correlation **functions** for negatively non-additive hard spheres in the PY approximation

SO Molecular Physics, (1988), 64(3), 535-556, 18 refs. ISSN: 0026-8976 CODEN: MOPHAM

ABFR Etude, dans le cadre de l'approximation de Percus-Yevick, de la forme fonctionnelle des fonctions de correlation directes des melanges binaires symetriques de spheres dures ayant des diametres negativement non additifs. Reduction a un probleme algebrique, de la resolution de l'**equation integrale d'Ornstein-Zernike**. Determination d'une **equation** d'etat numerique de type Carnahan-**Starling**. Comparaison avec des donnees de simulation de Monte Carlo de Adans et McDonald

CT Thermodynamics; Percus Yevick **model**; Hard sphere **model**; Correlation **function**; Binary system; **Equations** of state; **Ornstein Zernike equation**

CTFR Thermodynamique; **Modele** Percus Yevick; **Modele**

sphere dure; Fonction correlation; Systeme binaire; Equation etat; Equation Ornstein Zernike; Non additivite
CTES Termodinamica; Modelo Percus Yevick; Modelo esfera dura; Funcion correlacion; Sistema binario; Ecuacion de estado; Ecuacion Ornstein Zernike
AN 1989-0167860 PASCAL Full-text
CC 001B01C07; Physics; Statistical physics, Thermodynamics
CCFR 001B01C07; Physique; Physique statistique, Thermodynamique
CCES 001B01C07; Fisica; Fisica estadistica, Termodinamica
CT Thermodynamics; Percus Yevick model; Hard sphere model; Correlation function; Binary system; Equations of state; Ornstein Zernike equation
CTFR Thermodynamique; Modele Percus Yevick; Modele sphere dure; Fonction correlation; Systeme binaire; Equation etat; Equation Ornstein Zernike; Non additivite
CTES Termodinamica; Modelo Percus Yevick; Modelo esfera dura; Funcion correlacion; Sistema binario; Ecuacion de estado; Ecuacion Ornstein Zernike

L144 ANSWER 26 OF 50 PASCAL COPYRIGHT 2010 INIST-CNRS. ALL RIGHTS RESERVED. on STN
ACCESSION NUMBER: 1985-0112680 PASCAL Full-text
TITLE (IN ENGLISH): Linear integral equations and renormalization group
AUTHOR: KLEIN W.; HAYMET A. D. J.
CORPORATE SOURCE: IBM Zuerich, res. lab., Rueschlikon 8803, Switzerland
SOURCE: Physical Review. B: condensed Matter, (1984), 30(3), 1387-1397, 24 refs. ISSN: 0163-1829
DOCUMENT TYPE: Journal
BIBLIOGRAPHIC LEVEL: Analytic
COUNTRY: United States
LANGUAGE: English
AVAILABILITY: CNRS-144B
TIEN Linear integral equations and renormalization group
SO Physical Review. B: condensed Matter, (1984), 30(3), 1387-1397, 24 refs. ISSN: 0163-1829
ABFR On utilise une formulation de la technique du groupe de renormalisation position-espace, pour analyser le comportement singulier des solutions de plusieurs equations integrales utilisees dans la theorie de l'etat liquide. En particulier, on examine l'equation tronquee de Kirkwood-Salsburg, l'equation de Ornstein- Zernike, et une equation non lineaire simple utilisee dans la theorie du champ moyen des liquides. Cette analyse donne une methode naturelle pour definir une 'dimension fractale' a une transition de phase
CT Theoretical study; Phase transformation; Liquid state; Renormalization group; Critical exponent; Order parameter
CTFR Etude theorique; Transformation phase; Etat liquide; Groupe renormalisation; Exposant critique; Parametre ordre
AN 1985-0112680 PASCAL Full-text
CC 001B10D03; Physics; Condensed matter physics, Materials science; Equations of state, Phase equilibria, Phase transformations
CCFR 001B10D03; Physique; Physique de l'etat condense, Science des materiaux; Equations d'etat, Equilibres de phases, Transformations de phase
CCES 001B10D03; Fisica; Fisica del estado condensado, Ciencia de los materiales; Ecuaciones de estado, Equilibrios de fases, Transformaciones de fases
CT Theoretical study; Phase transformation; Liquid state; Renormalization group; Critical exponent; Order parameter
CTFR Etude theorique; Transformation phase; Etat liquide; Groupe renormalisation; Exposant critique; Parametre ordre

L144 ANSWER 27 OF 50 RAPRA COPYRIGHT 2010 RAPRA on STN
ACCESSION NUMBER: R:773539 RAPRA Full-text
FILE SEGMENT: Rapra Abstracts
TITLE: REFLECTIVE AND CONDUCTIVE STAR POLYMERS.
INVENTOR: Wang F; Rauh R D
PATENT ASSIGNEE: EIC Laboratories Inc.
PATENT INFORMATION: US 6025462 A1 20000215
APPLICATION INFORMATION: US 1998-33882 19980303
DOCUMENT TYPE: Patent
LANGUAGE: English
AB Disclosed are conductive polymers having a star structure comprising a central core with multiple attachment sites and conjugated charge transporting arms radiating therefrom. The cores are derived from hyperbranched polymers, dendrimers or other molecules with a number of attachment sites. The arms are derived from conjugated oligomers and polymers, such as polythiophene, polyaniline or polyphenylene. The polymers allow assembly of the macromolecules in all three dimensions in the solid state. Highly reflective, smooth coatings simply applied from solution may be produced using these polymers. A preferred polymer having a 1,3,5 hyperbranched polyphenylene core and poly(3-hexylthiophene) arms provides lustrous reflective gold coatings.
TI REFLECTIVE AND CONDUCTIVE STAR POLYMERS.
PA EIC Laboratories Inc.
PI US 6025462 A1 20000215
PI US 6025462 A1 20000215
AI US 1998-33882 19980303
AB Disclosed are conductive polymers having a star structure comprising a central core with multiple attachment sites and conjugated charge transporting arms radiating therefrom. The cores are derived from hyperbranched polymers, dendrimers or other molecules with a number of attachment sites. The arms are derived from conjugated oligomers and polymers, such as polythiophene, polyaniline or polyphenylene. The polymers allow assembly of the macromolecules in all three dimensions in the solid state. Highly reflective, smooth coatings simply applied from solution may be produced using these polymers. A preferred polymer having a 1,3,5 hyperbranched polyphenylene core and poly(3-hexylthiophene) arms provides lustrous reflective gold coatings.
CT CHARGE TRANSPORT; COATING; COMPANIES; COMPANY; CONDUCTIVE POLYMER; CORE; DENDRIMER; ELECTRICAL CONDUCTIVITY; HYPERBRANCHED; LUSTRE; OLIGOMER; PHENYLENE POLYMER; PLASTIC; POLYANILINE; POLYHEXYL THIOPHENE; POLYHEXYLTHIOPHENE; POLYPHENYLENE; POLYTHIOPHENE; REFLECTIVE; SMOOTHNESS; SOLID STATE; SOLUTION; STAR-SHAPED; TECHNICAL; THERMAL CONDUCTIVITY; THIOPHENE POLYMER; THREE-DIMENSIONAL
AN R:773539 RAPRA FS Rapra Abstracts Full-text
IC ICM C08G0150001500
CC 6A3; 99; 9113
CT CHARGE TRANSPORT; COATING; COMPANIES; COMPANY; CONDUCTIVE POLYMER; CORE; DENDRIMER; ELECTRICAL CONDUCTIVITY; HYPERBRANCHED; LUSTRE; OLIGOMER; PHENYLENE POLYMER; PLASTIC; POLYANILINE; POLYHEXYL THIOPHENE; POLYHEXYLTHIOPHENE; POLYPHENYLENE; POLYTHIOPHENE; REFLECTIVE; SMOOTHNESS; SOLID STATE; SOLUTION; STAR-SHAPED; TECHNICAL; THERMAL CONDUCTIVITY; THIOPHENE POLYMER; THREE-DIMENSIONAL
NPT GOLD
GT USA

L144 ANSWER 28 OF 50 RAPRA COPYRIGHT 2010 RAPRA on STN
ACCESSION NUMBER: R:577784 RAPRA Full-text
FILE SEGMENT: Rapra Abstracts
TITLE: CHIRALITY AND DENDRIMERS. THE ISSUE OF CHIRAL RECOGNITION AT THE NANOSCOPIC LEVEL.
AUTHOR: Kremers J A; Meijer E W (Eindhoven,University of Technology)
SOURCE: Macromolecular Symposia Vol.98, July 1995, p.491-9
ISSN: 1022-1360

PUBLICATION YEAR: 1995
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The synthesis and characterisation of two chiral **dendrimers** in their racemic form is presented. The chirality is based on the construction of four constitutionally different, but chemically resembling, branches to an achiral **core**. A **multi**-substituted pentaerythritol **derivative** is used as **core** and Frechet's aromatic-ether **dendritic** wedges of different generation are used as branches. The synthetic approach makes use of the consecutive attachment of the four branches by selective deprotection of the **core**. Both chiral **dendrimers** of different size were synthesised from the same precursor. Proton NMR spectroscopy indicated an overall structure for the smaller **dendrimer** and stratified structures were observed for both **dendrimers**. Several attempts to resolve both **dendrimers** were not successful. 12 refs. (Presented at 35th IUPAC Int. Symp. on Macromolecules, Akron, Ohio, USA, 11th-15th July 1994).
TI CHIRALITY AND **DENDRIMERS**. THE ISSUE OF CHIRAL RECOGNITION AT THE NANOSCOPIC LEVEL.
PY 1995
AB The synthesis and characterisation of two chiral **dendrimers** in their racemic form is presented. The chirality is based on the construction of four constitutionally different, but chemically resembling, branches to an achiral **core**. A **multi**-substituted pentaerythritol **derivative** is used as **core** and Frechet's aromatic-ether **dendritic** wedges of different generation are used as branches. The synthetic approach makes use of the consecutive attachment of the four branches by selective deprotection of the **core**. Both chiral **dendrimers** of different size were synthesised from the same precursor. Proton NMR spectroscopy indicated an overall structure for the smaller **dendrimer** and stratified structures were observed for both **dendrimers**. Several attempts to resolve both **dendrimers** were not successful. 12 refs. (Presented at 35th IUPAC Int. Symp. on Macromolecules, Akron, Ohio, USA, 11th-15th July 1994).
CT CHIRAL; CHIRAL RECOGNITION; DATA; **DENDRIMER**; GRAPH; NANOSCOPIC; NUCLEAR MAGNETIC RESONANCE; OPTICAL RESOLUTION; PENTAERYTHRITOL COPOLYMER; PLASTIC; PMR; POLYARYLETHER; POLYPHENYLENE ETHER; POLYPHENYLENE OXIDE; PRECURSOR; PROTON MAGNETIC RESONANCE; TABLES; TECHNICAL; THERMOPLASTIC
SHR CHARACTERISATION,optical resolution,**dendrimers**
AN R:577784 RAPRA FS Rapra Abstracts Full-text
CC 43C52; 724; 9113; 9921
SC *UJ; UB; UC; KS
CT CHIRAL; CHIRAL RECOGNITION; DATA; **DENDRIMER**; GRAPH; NANOSCOPIC; NUCLEAR MAGNETIC RESONANCE; OPTICAL RESOLUTION; PENTAERYTHRITOL COPOLYMER; PLASTIC; PMR; POLYARYLETHER; POLYPHENYLENE ETHER; POLYPHENYLENE OXIDE; PRECURSOR; PROTON MAGNETIC RESONANCE; TABLES; TECHNICAL; THERMOPLASTIC
SHR CHARACTERISATION,optical resolution,**dendrimers**
GT EUROPEAN COMMUNITY; EUROPEAN UNION; NETHERLANDS; WESTERN EUROPE

L144 ANSWER 29 OF 50 RAPRA COPYRIGHT 2010 RAPRA on STN
ACCESSION NUMBER: R:568527 RAPRA Full-text
FILE SEGMENT: Rapra Abstracts
TITLE: CHIRAL **DENDRIMERS DERIVED** FROM PENTAERYTHRITOL.
AUTHOR: Kremers J A; Meijer E W (Eindhoven,University of Technology)
SOURCE: Reactive & Functional Polymers 26, Nos.1-3, Sept.1995, p.137-44 ISSN: 1381-5148
PUBLICATION YEAR: 1995
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The synthesis and characterisation of two chiral **dendrimers** in their racemic form is presented. The chirality is based on the construction of four constitutionally different, but chemically similar, branches to an achiral **core**. A **multi**-substituted pentaerythritol **derivative** was used as **core** and Frechet's aromatic-ether **dendritic** wedges of different generation were used as branches. The synthetic approach made use of the fact that the four branches were attached consecutively by a selective deprotection of the **core**. Both chiral **dendrimers** of different size were synthesised from the same precursor. PMR indicated an overall chiral shape for one polymer and stratified structures for both. Several attempts to resolve both **dendrimers** into their

individual enantiomers were unsuccessful, giving rise to a discussion on the degree of chirality of these dendrimers of nanometer dimensions. 34 refs. (Presented at POC'94, 6th Int. Conf. on Polymer Supported Reactions in Organic Chemistry, Venice, Italy, 19th-23rd June 1994).

TI CHIRAL DENDRIMERS DERIVED FROM PENTAERYTHRITOL.

PY 1995

AB The synthesis and characterisation of two chiral dendrimers in their racemic form is presented. The chirality is based on the construction of four constitutionally different, but chemically similar, branches to an achiral core. A multi-substituted pentaerythritol derivative was used as core and Frechet's aromatic-ether dendritic wedges of different generation were used as branches. The synthetic approach made use of the fact that the four branches were attached consecutively by a selective deprotection of the core. Both chiral dendrimers of different size were synthesised from the same precursor. PMR indicated an overall chiral shape for one polymer and stratified structures for both. Several attempts to resolve both dendrimers into their individual enantiomers were unsuccessful, giving rise to a discussion on the degree of chirality of these dendrimers of nanometer dimensions. 34 refs. (Presented at POC'94, 6th Int. Conf. on Polymer Supported Reactions in Organic Chemistry, Venice, Italy, 19th-23rd June 1994).

CT BRANCHING; CHIRAL POLYMER; COUPLING POLYMERISATION; DATA; DENDRIMER; LAYER; NANOCHEMISTRY; NMR; NUCLEAR MAGNETIC RESONANCE; OPTICAL PROPERTIES; PENTAERYTHRITOL COPOLYMER; PLASTIC; POLYETHER; REACTIVE POLYMER; STRATIFICATION; TECHNICAL; THERMOPLASTIC; YIELD; COUPLING POLYMERIZATION

SHR ETHER POLYMERS,dendrimers,pentaerythritol polymers

AN R:568527 RAPRA FS Rapra Abstracts Full-text

CC 43F12; 724; 43C5; 6M; 99

SC *KB; KS; UC

CT BRANCHING; CHIRAL POLYMER; COUPLING POLYMERISATION; DATA; DENDRIMER; LAYER; NANOCHEMISTRY; NMR; NUCLEAR MAGNETIC RESONANCE; OPTICAL PROPERTIES; PENTAERYTHRITOL COPOLYMER; PLASTIC; POLYETHER; REACTIVE POLYMER; STRATIFICATION; TECHNICAL; THERMOPLASTIC; YIELD; COUPLING POLYMERIZATION

SHR ETHER POLYMERS,dendrimers,pentaerythritol polymers

GT EUROPEAN COMMUNITY; EUROPEAN UNION; NETHERLANDS; WESTERN EUROPE

L144 ANSWER 30 OF 50 JAPIO (C) 2010 JPO on STN

ACCESSION NUMBER: 1990-169868 JAPIO Full-text

TITLE: TIMER CIRCUIT

INVENTOR: NEMOTO KAZUMI

PATENT ASSIGNEE(S): SAWAFUJI ELECTRIC CO LTD

PATENT INFORMATION:

PATENT NO	KIND	DATE	ERA	MAIN IPC
JP 02169868	A	19900629	Heisei	F02N011-08

APPLICATION INFORMATION

STN FORMAT: JP 1988-321263 19881220

ORIGINAL: JP63321263 Showa

PRIORITY APPLN. INFO.: JP 1988-321263 19881220

SOURCE: PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined Applications, Vol. 1990

AB PURPOSE: To obtain a timer circuit at a low cost by setting the time constant characteristic of a CR circuit to the time required for the desired pre-heating or the time required for the after-heating.

CONSTITUTION: When a Diesel engine is to be started at a low temperature, the proper time required for the pre-heating or after-heating is obtained respectively. For pre-heating, the reference voltage Vs is connected to the minus terminal of a differential amplifier 1, the branch point between a resistor R1 and a resistor R2 in a serial circuit of the resistor R1 and R2 and a capacitor C1 inserted between a power source and the earth is connected to the plus terminal of the differential amplifier 1 respectively, and the time constant characteristic consisting of the resistors R1 and R2 and the capacitor C1 is set to the time required for pre-heating. The same means is used for after-heating. Two times required for pre-heating can be correctly determined

only by using one differential amplifier 1, and likwise for after-heating. COPYRIGHT: (C)1990,JPO&Japio
PI JP 02169868 A 19900629 Heisei
AI JP 1988-321263 (JP63321263 Showa) 19881220
PRAI JP 1988-321263 19881220
AB PURPOSE: To obtain a timer circuit at a low cost by setting the time constant characteristic of a CR circuit to the time required for the desired pre-heating or the time required for the after-heating.
CONSTITUTION: When a Diesel engine is to be started at a low temperature, the proper time required for the pre-heating or after-heating is obtained respectively. For pre-heating, the reference voltage Vs is connected to the minus terminal of a differential amplifier 1, the branch point between a resistor R1 and a resistor R2 in a serial circuit of the resistor R1 and R2 and a capacitor C1 inserted between a power source and the earth is connected to the plus terminal of the differential amplifier 1 respectively, and the time constant characteristic consisting of the resistors R1 and R2 and the capacitor C1 is set to the time required for pre-heating. The same means is used for after-heating. Two times required for pre-heating can be correctly determined only by using one differential amplifier 1, and likwise for after-heating. COPYRIGHT: (C)1990,JPO&Japio
IC ICM F02N011-08
ICS F02N017-04; F02P019-02; F02P019-02

=> d l144 31-50 full

L144 ANSWER 31 OF 50 WPIX COPYRIGHT 2010 THOMSON REUTERS on STN
AN 2007-476948 [200746] WPIX Full-text
DNC C2007-174201 [200746]
TI New macromolecule for treating sexually transmitted infection comprises building units having hydrocarbon backbone with carbonyl group and amine group(s), and at least two functional moieties, in controlled functional moiety stoichiometry
DC A96; B04; D16
IN BOYD B J; GREATREX B W; HENDERSON S A; KAMINSKAS L M; KELLY B D; KRIPPNER G Y; LICHTI G; PALLICH S; PORTER C J H; RAZZINO P; RENDLE P M; SCHEPPOKAT A M; WILLIAMS C C
PA (STAR-N) STARPHARMA PTY LTD; (STAR-N) STARPHARMA LTD
CYC 117
PI WO 2007048190 A1 20070503 (200746)* EN 298[23]
EP 1940916 A1 20080709 (200847) EN
AU 2006308511 A1 20070503 (200859) EN
CA 2626865 A1 20070503 (200929) EN
US 20090118467 A1 20090507 (200932) EN
ADT WO 2007048190 A1 WO 2006-AU1591 20061025; AU 2006308511 A1 AU 2006-308511 20061025; CA 2626865 A1 CA 2006-2626865 20061025; EP 1940916 A1 EP 2006-790425 20061025; EP 1940916 A1 PCT Application WO 2006-AU1591 20061025; CA 2626865 A1 PCT Application WO 2006-AU1591 20061025; CA 2626865 A1 PCT Nat. Entry CA 2006-2626865 20080422; US 20090118467 A1 PCT Application WO 2006-AU1591 20061025; US 20090118467 A1 US 2008-91233 20080423
FDT EP 1940916 A1 Based on WO 2007048190 A; AU 2006308511 A1 Based on WO 2007048190 A; CA 2626865 A1 Based on WO 2007048190 A
PRAI AU 2006-906087 20061024
AU 2005-905908 20051025
IPCI A61K0031-74 [I,C]; A61K0031-74 [I,C]; A61K0031-785 [I,A]; C07K0005-00 [I,A]; C07K0005-00 [I,C]; C08G0069-00 [I,C]; C08G0069-00 [I,C]; C08G0069-10 [I,A]; C08G0069-42 [I,A]; C08G0073-00 [I,C]; C08G0073-00 [I,C]; C08G0073-10 [I,A]; C08G0083-00 [I,C]; C08G0083-00 [I,A]; C08G0083-00 [I,C]
EPC A61K0031-785; C08G0083-00D
NCL NCLM 530/323.000
AB WO 2007048190 A1 UPAB: 20090509
NOVELTY - A macromolecule (M) comprises: a controlled functional moiety stoichiometry including at least one dendritic motif comprising a surface layer formed from at least one surface building unit, and at least one subsurface layer formed from at least one building unit; the surface building unit and building units having a hydrocarbon backbone bearing a carbonyl group and at least one amine group; and at least two

different functional moieties on the building unit and/or surface building unit, in a stoichiometry related to number and type of functional moieties, is new.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are included for the following:

(1) a preparation (P1) of macromolecules (M) comprising: (greater than or equal to10, preferably greater than or equal to80)% enrichment in a selected functional moiety stoichiometry;

(2) a macromolecule (M1) of formula: Core ((Building Unit)m(Surface Building Unit)n(Functional moieties)p)q. The (Building Unit)m(Surface Building Unit)n(Functional moieties)p is a dendritic motif; and the functional moieties include greater than or equal to2 different functional moieties;

(3) a macromolecule (M2) having a controlled functional moiety stoichiometry and comprising the dendritic motif of the molecule (M), comprising: a functional moiety stoichiometry including number and type of functional moieties, such that when there are only two types of functional moiety A and B on the same building unit or surface building unit, the functional moiety stoichiometry is other than 1:1;

(4) a macromolecule (M3) having a controlled functional moiety stoichiometry and comprising the dendritic motif of the molecule (M), comprising: a selected topological isomer including relationship between each functional moiety in terms of its connection to the surface and subsurface layers;

(5) preparing the macromolecule (M); and

(6) a composition (C1) comprising: the macromolecule (M) and optionally a carrier or excipient.

Core=a com pound, particle or substrate to which the dendritic motif is attached;

Building Unit=lysine or its analogue;

Surface Building Unit=lysine or its analogues, glutamate or aspartate;

Functional moieties=protecting groups, biological effect moiety ligands for extracellular receptors, property modifiers, biological targeting groups, signaling groups, antigenic materials, genetic materials, pharmaceutical agents, groups adapted to mediate binding to a second entity, or linkers;

m=sum of the building units of the subsurface layers of the dendritic motif, selected from 1 - 64;

n=number of surface building units of the dendritic motif, selected from 2 - 64;

p=total number of functional moieties on the surface of the macromolecule, selected from 4 - 128;

q=total number of dendritic motifs on the core of the macromolecule, selected from 1 - 106.

ACTIVITY - Virucide; Anti-HIV; Antiinflammatory; Hepatotropic. The cells were counted and seeded into wells of Sarstedt (RTM: 24-well plate) (5x105 cells/well) in 0.5% FCS (fetal calf serum)/RPMI. The compound (a), vehicle controls or dexamethasone (Dex) were immediately added to the wells. The plate was incubated at 37degreesC, 5% CO2 for 30 minutes. Lipopolysaccharide was then added to test and Dex wells and the plate was incubated for a further 4 hours at 37degreesC, 5% CO2. After 4 hours, the contents of each well were collected, supernatant was collected and level of tumor necrosis factor-alpha (TNF-alpha) levels was determined by ELISA. The compound (a) showed IC50 for inhibition of TNF-alpha of 64.8 micrograms/ml.

MECHANISM OF ACTION - None given.

USE - For prophylactic or therapeutic treatment of a sexually transmitted infection, e.g. human immunodeficiency viruses I and II (HIV), herpes simplex viruses 1 and 2 (HSV), cytomegalovirus (CMV), varicella zoster virus (VZV), Epstein-Barr Virus (EBV), hepatitis viruses A, B, C and D, and human papilloma virus (HPV) (claimed); to deliver pharmaceutical compounds on its surface to a desired site; for enrichment of organic materials, such as particular stereoisomers or regioisomers, for biological applications; and screening for structure-activity relationships.

ADVANTAGE - The macromolecule has a controlled functional moiety stoichiometry, of the at least two different functional moieties on the building unit and/or surface building unit, such that comprises (greater than or equal to10, preferably greater than or equal to40, especially greater than or equal to80)% enrichment in a selected functional moiety stoichiometry, and a selected topology, with respect to including relationship between each functional moiety in terms of its connection to the surface and subsurface layers; as compared to the prior art macromolecules having homogeneous surface stoichiometry of two functionalities and homogeneous topology. The macromolecule is homogenous at the couplet, quartet, octet or 16-tet level; or the ratio of a selected couplet, quartet, octet or 16-tets to all other couplets, quartets, octets and 16-tets, respectively is approximately 1:1 - 1:16. Due to the ability to control both the surface properties and the overall structure of the macromolecule, the macromolecules can be utilized in various applications; such as to deliver

pharmaceutical compounds on its surface to a desired site, together with a secondary surface compound that may function to modify a specified characteristic, e.g. solubility, pharmacokinetics, targeting, bioavailability, potency, reactivity, and plasma life. Due to the capacity to enrich a dendritic macromolecule preparation in molecules of the same topology, the macromolecules provide enrichment of organic materials, such as particular stereoisomers or regioisomers, for biological applications, to obtain one topological isomer that is more effective than another topological isomer. The macromolecules further have the capacity to prepare macromolecule topological isomers in relatively pure form and allows screening for structure-activity relationships. In the treatment of sexually transmitted diseases, the macromolecules prevent infection of cells of the host organism by interfering with the binding of the infectious microbes to the host.

TECH PHARMACEUTICALS - Preferred Components: The further functional moieties are selected from biological effect moiety ligands for extracellular receptors, property modifiers, biological targeting groups, signaling groups, antigenic materials, genetic materials, pharmaceutical agents, groups adapted to mediate binding to a second entity, end stopping moieties or linkers.

Preferred Composition: The functional moieties of the composition (C1) include a lipophilic modifier or a polyanionic residue.

POLYMERS - Preferred Macromolecule: The macromolecule (M) preparation is enriched in a selected functional moiety stoichiometry. The macromolecule is a selected topological isomer, in which the topology describes the relationship between one functional moiety and another in terms of its connection to the subsurface structure. The dendritic motif includes a lysine or its analogue building unit having a carboxylate group or its residue; at the apex, attached to two amine groups, of which at least one amine group is attached to a carboxylate group or its residue of a second building unit, which in turn is attached directly or indirectly to a first and second functional moiety, such that at least one functional moiety is attached to a surface amine on the second building unit (preferably the second functional moiety is attached to a second surface amine on the second building unit). The macromolecule further includes a third functional moiety attached to the second amine group of the lysine or its analogue building unit. The functional moieties comprise moieties A or B, and form a pair of adjacent functional moieties connected to the same building unit, to form a couplet selected from (AA), (BB) and/or (AB); or comprise moieties A, B or D, and form a pair of adjacent functional moieties connected to the same building unit, to form a couplet selected from (AA), (AB), (AD), (BB), (BD) and/or (DD). The macromolecule includes at least one subsurface layer intermediate the apex carboxylate group or its residue and at least one surface amine. The at least one subsurface layer includes an apex carboxylate group or its residue, and two reactable amine groups, at least one of which is in turn attached to a further carboxylate group or ist residue. The functional moieties include amine protecting groups, selected from tert-butoxycarbonyl (Boc), benzyloxycarbonyl (CBz), A-nitrobenzyloxycarbamate (4-NO2-CBz), 9-fluorenyl-methoxy-carbonyl (Fmoc), 1-(4,4-dimethyl-2,6-dioxocyclohex-1-ylidene)ethyl (Dde), CF3CO2, 2-halo-CBz, allyloxycarbonyl (Alloc), Me3SiEtSO2, ((2,22-trichloro-ethyl)oxy)carbonyl (Troc), o-NO2PhSO2, 2,4-dinitrobenzene-sulfonyl or tert-butyldimethylsilyl chloride.

Preferred Building Units: The building units of the dendritic motif are selected from lysine or its analogues, having a moiety attached to the carboxylate group that indicates a bond which connects the building unit to a reactable amine selected from -C(=O)-CH(N)-(C2)4-N (lysine) (i), -C(=O)-CH2-N-C(=O)-CH(N)-(C2)4-N (glycyl-lysine), -C(=O)-(CH2)a2-CH((CH2)c2-N)((CH2)b2-N) (ii),

-C(=O)-(CH2)a-CH((CH2)c1-N)((CH2)b1-N) (iii),
-C(=O)-(CH2)a1-N((CH2)b2-N)((CH2)c2-N) (iv),
-C(=O)-(CH2)a1-C(=O)-N(-CH2-(CH2)b2-N)(-CH2-(CH2)c2-N) (v),
-C(=O)-(CH2)a1-Ph (substituted at positions 1 and 3 by -(CH2)b2-N and -(CH2)c2-N, respectively) (vi), -C(=O)-(CH2)a1-Ph (substituted at positions 1 and 3 by -O-CH2-(CH2)b2-N and -O-CH2-(CH2)c2-N) (vii), -C(=O)-(CH2)a1-Ph (substituted at positions 3 - 5 by -O-CH2-(CH2)b2-N, -O-CH2-(CH2)d2-N, and -O-CH2-(CH2)c2-N, respectively) (viii), or -C(=O)-(CH2)a1-Ph (substituted at 3 and 5 positions by -C(=O)-N-CH2-(CH2)b2-N and -C(=O)-N-CH2-(CH2)c2-N, respectively) (ix). The surface building units of the dendritic motif are selected from lysine, or its analogues, glutamate, aspartate, or analogs of formulae -C(=O)-(CH2)a-CH((CH2)c-A1)((CH2)b-A2) (x), -C(=O)-(CH2)a-N((CH2)c1-A1a)((CH2)b1-A2a) (xi), -C(=O)-(CH2)a1-C(=O)-N(-CH2-(CH2)c2-A1)((CH2)b2-A2) (xii), -C(=O)-(CH2)a1-Ph (substituted at 3 and 5 positions by -(CH2)b2-A1 and -(CH2)c2-A2, respectively) (xiii), -C(=O)-(CH2)a1-Ph (substituted at 3 and 5 positions by -O-CH2-(CH2)b2-A1 and -O-CH2-(CH2)c2-A2, respectively) (xiv), -C(=O)-(CH2)a1-Ph (substituted at 3 - 5 positions by -O-CH2-(CH2)b2-A1, -O-CH2-(CH2)d2-A2, and -O-CH2-(CH2)c2-A3, respectively) (xv), or -C(=O)-(CH2)a1-Ph (substituted at 3 and 5 positions by -C(=O)-N-CH2-(CH2)b2-A1 and -C(=O)-N-CH2-(CH2)c2-A2, respectively) (xvi) (preferably glutamate or aspartate). The alkyl chain moieties of the building units and surface building units optionally include alkoxy fragments selected from C-O-C or C-C-O-C-C, but other than O-C-X' (where X' = O or N).
a=0 - 2;
b and c=1 - 4;
A1 - A3=NH2, CO2H, OH, SH, X, allyl-X, epoxide, aziridine, N3 or alkyne;
X=halo;
b1 and c1=2 - 6;
A1a and A2a=NH2, CO2H, OH, SH, epoxide, N3 or alkyne;
a1=0 - 5;
b2 - d2=1 - 5.
Preferred Composition: In macromolecule preparation (P1) further exhibits an enrichment in a selected topological isomer. The macromolecule exhibits topological enrichment at the couplet level; at the quartet level, where a pair of adjacent couplets form a quartet, with each quartet having a line of connection to an apex carboxylate group of a surface-but-one building unit; at the octet level where adjacent quartets form an octet, with each octet having a line of connection to an apex carboxylate group of a surface-but-two building unit; or at the 16-tet level, where adjacent octets form a 16-tet, with each 16-tet having a line of connection to an apex carboxylate group of a surface-but-three building unit. The macromolecule is homogenous at the couplet, quartet, octet or 16-tet level; or the ratio of a selected couplet, quartet, octet or 16-tets to all other couplets, quartets, octets and 16-tets, respectively is approximately 1:1 - 1:16. The macromolecule is a dendrimer.
Preparation (claimed): Preparation of the macromolecule (M) involves: i) providing a growing macromolecule including at least one reactable group; a compound including at least one dendritic motif bearing at least two functional moieties, having a surface layer and at least one (preferably at least two) subsurface layer, and a hydrocarbon backbone and bearing an apex carbonyl group; ii) activating the apex carbonyl group of the dendritic motif; and iii) reacting the growing macromolecule with the carbonyl group of the dendritic motif. The process involves the preliminary steps of preparing the compound including at least one dendritic motif, which involves: iv) providing a first building compound including an apex carbonyl group, attached directly or indirectly to at least one amine group bearing at

least one functional moiety with a protecting group; a second building compound including an apex carbonyl group, attached to at least one amine group, and bearing a first and second functional moiety; v) activating the amine group on the first building compound by removing the protecting group; vi) activating the apex carbonyl of the second building compound; and vii) reacting the deprotected first building compound with the apex carbonyl group of the second building compound, to obtain a growing macromolecule including a reactable group, and further when at least one of the functional groups on the amine of the second building compound is a protecting group, involves: viii) activating the amine group on the second building compound, either prior to or after step (vii), by removing the protecting group; ix) providing a further functional moiety that is not a protecting group; x) activating the further functional moiety; and xi) reacting the deprotected second building compound with the activated further functional moiety. The process further involves: repeating steps viii) - xi) with the first or second building compound. The removal of protecting groups and subsequent reaction is conducted in a preselected order depending on the topology of the macromolecule to be produced.

Preferred Components: The reactable group bears a functional moiety that comprises a protecting group, which requires deprotection prior to reaction with apex carboxylate of the dendritic motif, and comprises an amine group. The growing macromolecule includes a second reactable group bearing a second functional moiety with a protecting group. The first and second functional moieties on the second building compound both bear protecting groups. When the second protecting group is different to the first, the second protecting group is inert to the activating conditions for removing the first protecting group. The growing macromolecule is either a core compound including at least one reactable group; a core compound including at least one reactable group, at least one of which bears a functional moiety being a protecting group; or a core compound having at least one layer of building compounds including an apex carbonyl group, attached to at least one amine group bearing a functional moiety with a protecting group.

ABEX DEFINITIONS - Preferred Definitions: - core= poly(amidoamine) (PAMAM), poly(propyleneimine) (POPAM) or polyethylenimine (PEI) dendrimer, dendrigrafts , arborols, or a linear polymer, comprising a diamine compound selected from the benzhydrylamide of lysine or other lysine amide, or groups of formulas N-CH2-(CH2)a2-N, N-CH2-(CH2)a3-O-(CH2-(CH2)b3-O-)d-CH2-(CH2)c3-N, N-(CH2)a4-(1,4-phenylene)-(CH2)b4-N, -N-(CH2)a5-CH2-N-C(=O)-(CH2)b5-C(=O)-N-CH2-(CH2)c5-N, N-(CH2)a6-CH2-N-C(=O)-(CH2)b6(1,-phenylene)-(CH2)c6-C(=O)-N-CH2-(CH2)d6-N; a triamine compound of formula N(-CH2-(CH2)a7-N)(-CH2-(CH2)b7-N)(-CH2-(CH2)c7-N), (H3C)C(-CH2-(CH2)a8-N)(-CH2-(CH2)b8-N)(-CH2-(CH2)c8-N), phenyl (substituted at 1, 3 and 5; 1, 2 and 5; and 1, 2 and 3 positions by -(CH2)a8-N, -(CH2)b8-N, and -(CH2)c8-N, respectively), phenyl (substituted at 1, 3 and 5 positions by -(CH2)a8-C(=O)-N-CH2-(CH2)d8-N, -(CH2)b8-C(=O)-N-CH2-(CH2)e8-N and -(CH2)c8-C(=O)-N-CH2-(CH2)f8-N, respectively), (1,3,5)triazine (substituted at 2, 4 and 6 positions by -N-CH2-(CH2)b9-N, -N-CH2-(CH2)c9-N and -N-CH2-(CH2)a9-N, respectively); or a tetramine compound of formula C(-CH2-(CH2)a8-N)(-CH2-(CH2)b8-N)(-CH2-(CH2)c8-N)(-CH2-(CH2)d9-N), phenyl (substituted at 1, 2, 4 and 5 positions by -(CH2)a8-N, -(CH2)b8-N, -(CH2)d9-N and -(CH2)c8-N respectively), C(-CH2-O-CH2-(CH2)a7-N)(-CH2-O-CH2-(CH2)b7-N)(-CH2-O-CH2-(CH2)c7-N)(-CH2-O-CH2-(CH2)d8-N), or phenyl (substituted at 1, 2, 4 and 5 positions by -(CH2)a7-C(=O)-N-CH2-(CH2)e9-N,

-(CH2)b7-C(=O)-N-CH2-(CH2)f9-N, -(CH2)c7-C(=O)-N-CH2-(CH2)h9-N, and -(CH2)d9-C(=O)-N-CH2-(CH2)g9-N, respectively) (all having the alkyl chain moieties optionally as alkoxy fragments of formula C-O-C or C-C-O-C-C, but other than O-C-X'); - a2=1 - 5; - a3 - c3=2 - 3; - d=1 - 30; - a4 and b4=0 - 5; - a5, c5, a6, d6, a7 - c7, d8 - f8, a9 - c9=1 - 6; - c5, b6, c6, a8 - c8, d9 - h9=0 - 6; - X'=O or N.

ADMINISTRATION - The administration is orally, rectally, parenterally (including subcutaneously, intravenously or intramuscularly), intraperitoneally, topically, buccally, vaginally, transdermally, intranasally, by aerosols, pulmonarily or directly into a body part. The dosage is (0.01 - 1000) mg/kg/day.

SPECIFIC COMPOUNDS - 66 Compounds are specifically disclosed as the macromolecules e.g. BHALys(GlyLys)2(Lys)4(alpha,alpha-Boc)2(alpha,epsilon-Boc)2(epsilon,alpha-NH2)2(epsilon,epsilon-NH2) (where BHA is benzhydrylamide); BHALys(GlyLys)2(Lys)4(Boc)6(epsilon,epsilon-NH2) of formula (Ia), BHALys(Lys)16(alpha,alpha-Boc)8(alpha,epsilon-Boc)8(epsilon,alpha-Boc)8(epsilon,epsilon-Cbz)8; BHALys(Lys)16(alpha,alpha-Boc)8(alpha,epsilon-Boc)8(epsilon,alpha-Boc)8(epsilon,epsilon-Fmoc)8; and BHALys(alpha-GlyLys)(Lys)2(Boc)4(epsilon-GlyLys)(Lys)2(NH2)4.

EXAMPLE - N,N-Dicyclohexylcarbodiimide (186 mg) was added to a solution of HOGlyLys(Lys)2 (Boc)3 (epsilon,epsilon-Cbz) (536 mg), BHALys(NH2TFA)2 (where BHA is benzhydrylamide, and TFA is trifluoroacetic acid) (135 mg), 4,4-dimethylaminopyridine (7.3 mg) and TEA (210 mul) in dimethylformamide (10 ml). The solution was stirred at room temperature for 15 hours and then worked up to give BHALys(GlyLys)2(Lys)4(Boc)6(epsilon,epsilon-Cbz)2 (a). To a magnetically stirred solution of (a) (95 mg) and 2,2,2-trifluoroethanol (2 ml) was added 10% Pd/C (16.4 mg). The black suspension was hydrogenated under standard conditions (room temperature, atmospheric pressure) for 19 hours, and then the reaction was worked up to give BHALys(GlyLys)2(Lys)4(Boc)6(epsilon,epsilon-NH2) (Ia) (83 mg, 93%) as a glass like solid.

FS CPI
MC CPI: A12-V01; B04-C03E; B14-A02; D05-H09; D05-H10

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AN 2007-440301 [200742] WPIX Full-text
DNC C2007-160115 [200742]
TI Anionic dendrimer polymer of at least two generations, including several terminal groups, useful for prophylactic or therapeutic inhibition of angiogenesis comprises at least one (3,5-disulfonyl)-benzoyl terminal group
DC A26; A96; B04; C03
IN HENDERSON S A; HOLAN G; KRIPPNER G Y; MCCARTHY T D
PA (STAR-N) STARPHARMA PTY LTD
CYC 111
PI WO 2007045010 A1 20070426 (200742)* EN 89[1]
ADT WO 2007045010 A1 WO 2006-AU636 20060515
PRAI AU 2006-902095 20060421
AU 2005-905858 20051021
IPCI A61K0031-166 [I,A]; A61K0031-166 [I,C]; A61K0031-74 [I,A]; A61K0031-74 [I,C]; A61K0031-785 [I,A]; A61K0047-48 [I,A]; A61K0047-48 [I,C]; C08G0069-00 [I,C]; C08G0069-08 [I,A]; C08G0069-10 [I,A]; C08G0083-00 [I,A]; C08G0083-00 [I,C]; C08L0077-00 [I,C]; C08L0077-10 [I,A]
EPC A61K0031-166; A61K0031-74; A61K0031-785; A61K0031-795; A61K0047-48K6
AB WO 2007045010 A1 UPAB: 20070703
NOVELTY - An anionic dendrimer polymer (P1) of at least two generations, including several terminal groups, comprises: at least one (3,5-disulfonyl)-benzoyl terminal group (I) or its derivative.

DETAILED DESCRIPTION - An anionic dendrimer polymer (P1) of at least two generations, including several terminal groups, comprises: at least one (3,5-disulfonyl)-benzoyl terminal group of formula (CO-3,5-Ph(SO3-)2) (I) or its derivative.

INDEPENDENT CLAIMS are included for the following:

(1) an anionic dendrimer polymer (P1a) of at least two generations, of formula: core -(repeating unit)n-(capping group)m (Ia);

(2) an anionic dendrimer polymer (P1b) of at least two generations and including at least two terminal groups, comprising: a first terminal group of formula (I) or its derivative; and a second terminal group;

(3) an anionic dendrimer polymer (P1c) of at least two generations of formula core (repeating unit)n(capping group 1)p(capping group 2)q; and

(4) preparation of the anionic dendrimer polymer (P1) involving: method (A): (a) providing a growing polymer including an outer layer bearing functional groups and at least one different protecting groups, and at least one terminal group precursor capable of generating the structure of formula (I); (b) deprotecting a functional group on the outer layer by removing a first protecting group; (c) activating the terminal group precursor(s); and (d) reacting the deprotected functional group with the activated terminal group, method (B): (a1) providing a growing polymer including an outer layer bearing functional groups and two or more different protecting groups, a first terminal group precursor capable of generating the structure of formula (I), and a second terminal group precursor comprising a pharmaceutical agent or its derivative or precursor, and/or a group that modifies the pharmacokinetics of the pharmaceutical agent and/or the polymer; (b1) deprotecting a functional group on the outer layer by removing a first protecting group; (c1) activating one of the first terminal group precursors; (d1) reacting the deprotected functional group with the activated terminal group precursor; (e1) deprotecting a functional group on the outer layer by removing a second protecting group; (f1) activating the other of the first or second terminal group precursors; and (g1) reacting the deprotected functional group with the activated terminal group precursor.

core=lysine or its derivative, diaminoalkane compound, or trialkyltetramine compound;

repeating unit=amidoamine, lysine or lysine analogue;

capping group and capping group 1=group of formula (I) or its derivative;

m, p and q=1 - 64;

n=number of building units on the surface layer of the dendrimer polymer, selected from 2 - 32;

second terminal group and capping group 2=-W'-Ph (di-substituted at 3 and 5 positions by CO2-, PO32-, or -O-PO32-), -W'-thiophen-3-yl (substituted at 2 position by CO2-), -W'-thiophen-2-yl (substituted at 3 position by SO3-), -W'-Ph (substituted at 4 positing by PO32-, SO3- or -O-PO32-), a residue of a pharmaceutical active agent or its derivative or precursor; and/or a group that modifies the pharmacokinetics of the pharmaceutical active agent and/or the polymer;

W'=a functional group attached to the terminal amine of the dendrimer, selected from C(O) or S(O)2.

ACTIVITY - Antiangiogenic; Anorectic; Antiasthmatic; Antiarteriosclerotic; Dermatological; Virucide; Antiallergic; Vulnerary; Gynecological; Antiinflammatory; Respiratory-Gen.; Antirheumatic; Antiarthritic; Osteopathic; Hepatotropic; Nephrotropic; Immunosuppressive; Ophthalmological; Antidiabetic; Antithyroid; Hemostatic; Antipsoriatic; Vasotropic. An anionic dendrimer of formula ethylenediamine (EDA)(Lys)8(CO-3,5-Ph(SO3Na)2)16 (a) was tested by human umbilical vein endothelial cell (HUVEC proliferation assay as follows. The HUVECs were grown (2000, 100 mul) in conditioned medium (CM) were seeded in 96-well plates, in triplicate wells, and the polymer (a) (2X dilution, 100 mul) was added in CM. Cells were allowed to grow for 48 - 72 hours, then fixed with 50% trichloroacetic acid (TCA), stained with sulforhodamine-B (SRB), absorbance at 550 nm that reflects the number of cells present in each well; was measured, and growth inhibition was expressed as percent of controls. The dendrimer (a) showed 100% inhibitory activity of the HUVEC cell proliferation.

MECHANISM OF ACTION - Angiogenesis inhibitor.

USE - In the manufacture of a medicament for prophylactic or therapeutic inhibition of angiogenesis, in a human or non-human animal (claimed), such as atherosclerosis, hemangioma, hemangioendothelioma, warts, pyogenic granuloma, hair growth, chronic inflammation, Kaposi's saroma, scar keloids, allergic edema, neoplasms, cancer, dysfunctional uterine bleeding (contraception), follicular cysts, ovarian hyperstimulation, endometriosis, respiratory distress, ascites, peritoneal sclerosis (dialysis), adhesion formation (abdominal surgery), metastasis and tumor metastasis, obesity, rheumatoid arthritis, synovitis, bone and cartilage destruction, osteomyelitis, pannus growth, osteophyte formation, hepatitis, pneumonia,

glomerulonephritis, asthma, nasal polyps, transplantation, liver regeneration, retinopathy of prematurely, diabetic retinopathy, age related macular degeneration, choroidal and other intraocular disorders, leucomalacia, thyroiditis, thyroid enlargement, pancreas transplantation, lymphoproliferative disorders, AIDS (Kaposi), psoriasis, restenosis and hemorrhagic malignancy; and for acceleration of wound healing by activation of release of active growth factors in the extracellular matrix.

ADVANTAGE - The anionic dendrimer polymer of at least two generations, including several terminal groups, and comprising at least one (3,5-disulfonyl)-benzoyl terminal group bonded to or linked to surface groups of the polymer, provides high angiogenic inhibition; while further exhibiting improvement in, in vivo efficacy, toxicity and pharmacokinetics; as compared to the prior art polymers. The polymers including an amide linkage between the surface amine and the compound of formula (I) are more stable, than the compounds including a thiourea linkage. The polymers are very ative even in extremely small quantities, and provide long-term administration of the pharmaceutical agent, which overcomes toxicity problems with standard use.

TECH POLYMERS - Preferred Components: The growing polymer is of the polylysine type having a repeating unit selected from at least one of -C(=O)-CH(N)-(CH2)4-N, and -C(=O)-(CH2)2-C(=O)-N((-CH2-)a'-(CH2)2-N)2 (where a' = 0 or 1). The protecting group(s) are selected from tert-butoxy carbonyl (Boc), benzyloxycarbonyl (CBz), 9-fluorenylmethoxy-carbonyl (Fmoc), 2-halo-CBz2, allyloxy-carbonyl (Aloc), Me3SiEtSO2 (SES), ((2,2,2-trichloroethyl)oxy)carbonyl (Troc), ortho-NO2PhSO2 (Ns), 2,4-dinitrobenzene-sulfonyl (DNF).

ABEX DEFINITIONS - Preferred Definitions: - core =benzhydrylamido-lysine (BHA-Lys), or a diamine of formula N-(-CH2)a-CH2-N, N-(-CH2-)a-1,4-phenylene-(CH2)b-N or (N-(-CH2-)a-CH2)-N((-CH2-)b-CH2-N)((-CH2-)c-CH2-N); - a - c=0 - 5; - repeating unit=a group of formula -C(=O)-CH(N)-(CH2)4-N or -C(=O)-(CH2)2-C(=O)-N((-CH2-)a'-(CH2)2-N)2; - a'=0 or 1; - second terminal group=group that prolongs the plasma half life of the pharmaceutical agent, or a group that facilitates the targeting and/or uptake of the pharmaceutical agent to at least one cell or tissue types, selected from polyethylene glycol (PEG) or polyethyloxazoline; or a residue of a pharmaceutical agent selected from acetonemia preparations, anaesthetics, anti-acid agents, antibodies, anti-fungals, anti-infectives, anti-metabolites, anti-mitotics, anti-protozoals, antiviral pharmaceuticals, biologicals, bronchodilators and expectorants, cardiovascular pharmaceuticals, contrast agents, diuretics, growth hormones, hematinics, hormone replacement therapies, immune suppressives, hormones and analogs, minerals, nutraceuticals and nutritionals, ophthalmic pharmaceuticals, pain therapeutics, respiratory pharmaceuticals, transplantation products, vaccines and adjuvants, anabolic agents, analgesics, anti-arthritic agents, anti-convulsants, anti-histamines, anti-inflammatories, anti-microbials, anti-parasitic agents, anti-ulcer agents, behavior modification drugs, blood and blood substitutes, cancer therapy and related pharmaceuticals, central nervous system pharmaceuticals, contraceptives, diabetes therapies, fertility pharmaceuticals, growth promoters, hemostatics, immunostimulants, muscle relaxants, natural products, obesity therapeutics, osteoporosis drugs, peptides and polypeptides, sedatives and tranquilizers, urinary acidifiers, or vitamins.

ADMINISTRATION - The administration is orally, rectally, topically, nasally, by inhalation, transdermally, parenterally (including subcutaneously, intramuscularly, intrathecally, intravenously, intrasocularly, intravitreally or by intraparenchymal injection), intravaginally, topically, directly into spinal fluid, direct introduction with catheter, or by balloon angioplasty devices. The dosage is (0.01 - 1000) mg/day, administered in subdoses, such as (0.01 - 1) mg.

SPECIFIC COMPOUNDS - 10 Anionic dendrimer polymers are specifically claimed as the polymer (P1) and (P1a) e.g. benzhydrylamido(BHA)-Lys-(Lys)4-(CO-3,5-Ph(SO3Na)2)8; BHA-Lys-(Lys)8-(CO-3,5-Ph(SO3Na)2)16;

ethylenediamine(EDA)-Lys-(Lys)8-(CO-3,5-Ph(SO3Na)2)16; triethyltetraamine (TETA)-(Lys)12-(CO-3,5-Ph(SO3Na)2)24; and diaminohexane(DAH)-(Lys)4-(CO-3,5-Ph(SO3Na)2)8.

EXAMPLE - Benzotriazole-1-yl-oxy-tri-pyrrolidino-phsophonium hexafluorophosphate (PyBOP) (0.53 g) was added to a stirred solution of ethylenediamine(EDA)(Lys)8(NH2-trifluoroacetic acid(TFA))16 (0.104 g) in dimethylformamide/dimethylsulfoxide (DMF/DMSO) (1:1) (10 ml). A solution of 3,5-disulfobenzoic acid (0.27 g) and diisopropylethylamine (0.7 ml) in DMF/DMSO (1:1) (10 ml) was then added gradually, and then the sticky precipitate obtained was worked up to give EDA(Lys)8(CO-3,5-Ph(SO3Na)2)16 as a white solid (0.17 g, 90%).

FS CPI

MC CPI: A10-E01; A12-V01; A12-V03B1; B04-C03E; B14-A01; B14-A02A6; B14-C03; B14-C09B; B14-E12; B14-F01G; B14-F02F2; B14-F07; B14-H01; B14-H05; B14-K01; B14-N01; B14-N03; B14-N10; B14-N11; B14-N12; B14-N14; B14-N17; C04-C03E; C14-A01; C14-A02A6; C14-C03; C14-C09B; C14-E12; C14-F01G; C14-F02F2; C14-F07; C14-H01; C14-H05; C14-K01; C14-N01; C14-N03; C14-N10; C14-N11; C14-N12; C14-N14; C14-N17

L144 ANSWER 33 OF 50 WPIX COPYRIGHT 2010 THOMSON REUTERS on STN

AN 2007-560137 [200754] WPIX Full-text

DNC C2007-204796 [200754]

TI Microbicidal delivery system for treating sexually transmitted infection includes composition comprising dendrimer compound containing naphthyl disulfonate terminal group and prophylactic device on surface of which composition is applied

DC A96; B05; D22

IN GROGAN O; GROGAN O T; HENDERSON S; MCCARTHY T; MCCARTHY T D; HENDERSON S A

PA (STAR-N) STARPHARMA PTY LTD; (STAR-N) STARPHARMA LTD

CYC 113

PI WO 2007045009 A1 20070426 (200754)* EN 39[0]
EP 1937284 A1 20080702 (200845) EN
AU 2006303860 A1 20070426 (200859) EN
IN 2008DN02831 A 20080808 (200879) EN
KR 2008074130 A 20080812 (200908) KO
CN 101365462 A 20090211 (200919) ZH
JP 2009511608 T 20090319 (200921) JA 37
CA 2626105 A1 20070426 (200927) EN
TW 2007016085 A 20070501 (200935) ZH
MX 2008005048 A1 20081130 (200953) ES
NZ 567203 A 20100625 (201053) EN
RU 2396962 C2 20100820 (201056) RU

ADT WO 2007045009 A1 WO 2006-AU120 20060201; AU 2006303860 A1 AU 2006-303860 20060201; CA 2626105 A1 CA 2006-2626105 20060201; CN 101365462 A CN 2006-80042352 20060201; EP 1937284 A1 EP 2006-704802 20060201; NZ 567203 A NZ 2006-567203 20060201; EP 1937284 A1 PCT Application WO 2006-AU120 20060201; IN 2008DN02831 A PCT Application WO 2006-AU120 20060201; KR 2008074130 A PCT Application WO 2006-AU120 20060201; CN 101365462 A PCT Application WO 2006-AU120 20060201; JP 2009511608 T PCT Application WO 2006-AU120 20060201; CA 2626105 A1 PCT Application WO 2006-AU120 20060201; MX 2008005048 A1 PCT Application WO 2006-AU120 20060201; NZ 567203 A PCT Application WO 2006-AU120 20060201; TW 2007016085 A TW 2006-103811 20060203; CA 2626105 A1 PCT Nat. Entry CA 2006-2626105 20080416; JP 2009511608 T JP 2008-535836 20060201; IN 2008DN02831 A IN 2008-DN2831 20080404; MX 2008005048 A1 MX 2008-5048 20080417; KR 2008074130 A KR 2008-711793 20080516; RU 2396962 C2 PCT Application WO 2006-AU120 20060201; RU 2396962 C2 RU 2008-119505 20060201

FDT EP 1937284 A1 Based on WO 2007045009 A; AU 2006303860 A1 Based on WO 2007045009 A; KR 2008074130 A Based on WO 2007045009 A; CN 101365462 A Based on WO 2007045009 A; JP 2009511608 T Based on WO 2007045009 A; CA 2626105 A1 Based on WO 2007045009 A; MX

2008005048 A1 Based on WO 2007045009 A; NZ 567203 A Based on WO 2007045009 A; RU 2396962 C2 Based on WO 2007045009 A

PRAI AU 2005-905750 20051018

IC ICM A61K031-785

IPCI A61F0006-00 [I,A]; A61F0006-00 [I,C]; A61F0006-00 [I,C]; A61F0006-00 [I,C]; A61F0006-04 [I,A]; A61F0006-04 [I,A]; A61F0006-08 [I,A]; A61F0006-08 [I,A]; A61F0006-10 [I,A]; A61F0006-10 [I,A]; A61K0031-18 [I,A]; A61K0031-18 [I,C]; A61K0031-74 [I,C]; A61K0031-74 [I,C]; A61K0031-74 [I,C]; A61K0031-785 [I,A]; A61K0031-785 [I,A]; A61K0045-00 [I,A]; A61K0045-00 [I,C]; A61K0047-02 [I,A]; A61K0047-02 [I,C]; A61K0047-10 [I,A]; A61K0047-10 [I,C]; A61P0015-00 [I,C]; A61P0015-16 [I,A]; A61P0031-00 [I,C]; A61P0031-00 [I,C]; A61P0031-00 [I,C]; A61P0031-04 [I,A]; A61P0031-12 [I,A]; A61P0031-12 [I,A]; A61P0031-18 [I,A]; A61P0031-18 [I,A]; A61P0031-20 [I,A]; A61P0031-22 [I,A]; A61K0031-095 [I,A]; A61K0031-095 [I,C]; A61K0031-765 [I,A]

EPC A01N0041-04; A61K0009-00M8

FCL A61K0031-785; A61K0045-00; A61K0047-02; A61K0047-10; A61P0015-16; A61P0031-04; A61P0031-18; A61P0031-20; A61P0031-22

Main: A61K0031-785

Secondary: A61K0045-00; A61K0047-02; A61K0047-10; A61P0015-16; A61P0031-04; A61P0031-18; A61P0031-20; A61P0031-22

FTRM 4C076; 4C084; 4C086; 4C201; 4C086/AA01; 4C086/AA02; 4C084/AA19; 4C076/CC34; 4C076/CC35; 4C076/CC45; 4C076/CC46; 4C076/DD30; 4C076/DD38; 4C076/DD44; 4C076/DD51; 4C076/EE09; 4C086/FA03; 4C086/MA01; 4C084/MA02; 4C086/MA02; 4C086/MA05; 4C084/NA05; 4C086/NA05; 4C084/NA14; 4C086/NA14; 4C086/ZA86; 4C084/ZA86.1; 4C086/ZB32; 4C084/ZB32.1; 4C086/ZB33; 4C084/ZB33.1; 4C084/ZC55.1

AB WO 2007045009 A1 UPAB: 20070822

NOVELTY - A microbicidal delivery system includes a microbicidal composition comprising a microbicidal compound including a dendrimer including at least one surface group selected from naphthyl disulfonate terminal group, or its active derivative or salt and solvate and a carrier, excipient or diluent; and a prophylactic device. The microbicidal composition is applied on the surface of the prophylactic device and is compatible with the device.

DETAILED DESCRIPTION - A microbicidal delivery system includes a microbicidal composition comprising a microbicidal compound including a dendrimer including at least one surface group selected from naphthyl disulfonate terminal group of formula (I), or its active derivative or salt and solvate and a carrier, excipient or diluent; and a prophylactic device. The microbicidal composition is applied on a surface of the prophylactic device and is compatible with the device.

An INDEPENDENT CLAIM is included for a microbicidal composition including the microbicidal compound and a secondary active composition. The secondary active composition is the contraceptive or the active agent against sexually transmitted infections.

ACTIVITY - Virucide; Anti-HIV; Antibacterial.

No biological data is given.

MECHANISM OF ACTION - None given.

USE - For the prevention of sexually transmitted infections (e.g. a vaginally, rectally or orally transmitted sexually transmitted infection e.g. Herpes virus (HSV-1), HSV-2, HIV-1, HIV-2 and HPV infection and Chlamydia trachomatis infection) in a human patient and as microbicidal delivery system e.g. a condom, cervical cap, contraceptive diaphragm, vaginal sponge or pessary (claimed).

ADVANTAGE - The dendrimer exhibits potent antiviral activity against a broad spectrum of microorganism associated with sexually transmitted disease. The efficacy of the microbiocidal composition is increased by delivery of the composition to the potential sites of infection concomitant with sexual activity. The delivery system reduces or eliminates the adverse side effects associated with detergent-based microbicides resulting in significantly decreased susceptibility to infection with HSV-2 or HIV.

TECH INORGANIC CHEMISTRY - Preferred Components: The salt is a metallic salt selected from aluminium, calcium, lithium, magnesium, potassium, sodium and/or zinc salt. The salt is a quaternary amine, a sulfonium salt or a phosphonium salt. The carrier, excipient or diluent includes sodium hydroxide and/or water.

ORGANIC CHEMISTRY - Preferred Compound: The microbicidal compound

is SPL7013 (polylysine dendrimer scaffold), SPL7304 (polypropyleneimine dendrimer scaffold) or SPL7320 (polyamidoamine dendrimer scaffold) or their salts. The salt is an organic salt selected from N,N'-dibenzylethylenediamine, chloroprocaine, diethanolamine, ethylenediamine, cyclohexylamine, meglumine (N-methylglucamine) and/or procaine. The carrier, excipient or diluent includes water soluble oils, buffering agents, propylene glycol and/or glycerine.
PHARMACEUTICALS - Preferred System: The system comprises the microbicidal composition (0.25 - 2 g).
Preferred Composition: The composition comprises (wt/wt.%) the microbicidal compound (I) (0.5 - 20, preferably 2 - 15) and includes a secondary active compound. The secondary active compound is a contraceptive or an agent active against sexually transmitted infections (preferably a contraceptive, a spermicide or podophyllin, tetracycline, nystatin, fluconazole, metronidazole, acyclovir, penicillin, cefotaxime, specinomycin, retrovir, erythromycin, ceftriaxone, cotrimoxazole, cotrimoxazole, benzyl benzoate, malathion, nonoxynol-9, octoxynol-9, menfegol, progestin, estrogen or estradiol).
Preferred Device: The prophylactic device is a condom, cervical cap, contraceptive diaphragm, vaginal sponge or pessary (preferably a condom). The microbicidal composition is applied on an external surface of the prophylactic device, is impregnated into the prophylactic device or is covalently bound to a surface of the prophylactic device. The microbicidal composition is applied on an external surface and/or an internal surface of the condom and or covers at least a substantial portion of the external surface and/or the internal surface of the condom.

ABEX ADMINISTRATION - The composition is administered topically.
EXAMPLE - A microbicidal composition (3% active) contained (kg) sodium hydroxide (0.1443), edetate disodium dihydrate (0.010), methylparaben (0.018), propylparaben (0.002), carbopol 971P (RTM: buffering agent) (0.500), propylene glycol (0.100), glycerin (0.100), purified water I (1.804) and purified water II (8.370) and SPL7013 (polylysine dendrimer scaffold) (0.339).
Individually packaged male condoms made from natural rubber latex and intended for single use with minimum requirements specified in ASTM Designation; D 3492-97 (American Society for Testing and Materials, Standard Specification for Rubber Contraceptives, Male Condoms) test method were used. A sample (4 g) of a placebo gel/the test composition was spread on 7.5x410 cm aluminium foil and wrapped around a condom. The condom was placed on polypropylene dowel and dowel was wrapped with the aluminium foil containing the test article. After 30 minutes, the aluminium foil was removed and the condom was blotted free of adhering gel. The length, width volume, and pressure at burst of the treated condoms were then measured as given in CDDR-R4316-0600-NL-3, Pages 106 of 108 and 107 of 108, June 26, 2000. and using the placebo gel/the test composition, the length (mm) and width (mm) of condom before dipping was 185/186 and 53/53 and after dipping was not 185/187 and 53/53, time to burst (seconds) was 86/69, burst pressure (kPa) was 2.09/1.55 and burst volume (l) was 31.71/39.23.

FS CPI

MC CPI: A10-E01; A12-V01; A12-V03B1; B01-A02; B01-C04; B02-Z; B04-A08C2; B04-A10F; B04-B03D; B04-C03C; B04-C03E; B04-J02; B05-B01F; B06-D09; B07-D09; B07-D13; B07-E01; B10-A09S; B10-G02; B11-C04D; B14-A01; B14-A02; B14-P01; B14-S18; D09-A01; D09-C04

L144 ANSWER 34 OF 50 WPIX COPYRIGHT 2010 THOMSON REUTERS on STN

AN 2007-232235 [200723] WPIX Full-text

DNC C2007-084442 [200723]

TI New branched-chain carbosilane dendrimers, useful as carriers for anionic pharmaceuticals, particularly nucleic acid, also for treatment of e.g. HIV, prion diseases and protein aggregation

```
DC   A26; A96; B04; D16
IN   BERMEJO M J F; BERMEJO MARTIN J F; CHONCO J L; CHONCO JIMENEZ L;
     CLEMENTE M M I; CLEMENTE MAYORAL M I; DE JESUS A E; DE JESUS
     ALCANIZ E; DE LA MATA D L M F; DE LA MATA DE LA MATA F; FERNANDEZ
     G G; FERNANDEZ GOMEZ-CHACON G; FERNANDEZ GOMEZ-CHACON J; FLORES S
     J C; FLORES SERRANO J C; GOMEZ R R; GOMEZ RAMIREZ R; JIMENEZ F J
     L; JIMENEZ FUENTES J L; MUNOZ F M A; MUNOZ FERNANDEZ M A; ORTEGA L
     P; ORTEGA LOPEZ P; QUESADA N M; SERRAMIA L M J; SERRAMIA LOBERA M
     J; CHONCO-JIMENEZ L
PA   (DEND-N) DENDRICO SL; (QUES-I) QUESADA N M; (UYAL-N) UNIV ALCALA;
     (MART-I) BERMEJO MARTIN J F; (JIME-I) CHONCO-JIMENEZ L; (MAYO-I)
     CLEMENTE MAYORAL M I; (ALCA-I) DE JESUS ALCANIZ E; (DMAT-I) DE LA
     MATA DE LA MATA F; (GOME-I) FERNANDEZ GOMEZ-CHACON G; (SERR-I)
     FLORES SERRANO J C; (RAMI-I) GOMEZ RAMIREZ R; (FUEN-I) JIMENEZ
     FUENTES J L; (FERN-I) MUNOZ FERNANDEZ M A; (LOPE-I) ORTEGA LOPEZ
     P; (LOBE-I) SERRAMIA LOBERA M J
CYC  114
PI   WO 2007010080   A2 20070125 (200723)* ES  193[35]
     ES 2265291      A1 20070201 (200723)  ES
     ES 2265291      B1 20080301 (200821)  ES
     AU 2006271626   A1 20070125 (200847)  EN
     EP 1942130      A2 20080709 (200847)  EN
     CN 101228212    A  20080723 (200858)  ZH
     JP 2009502765   T  20090129 (200909)  JA  128
     CA 2616092      A1 20070125 (200916)  EN
     MX 2008000830   A1 20080531 (200934)  ES
     US 20100034789  A1 20100211 (201012)  EN
ADT  WO 2007010080 A2 WO 2006-ES70111 20060721; ES 2265291 A1 ES
     2005-1810 20050722; ES 2265291 B1 ES 2005-1810
     20050722; AU 2006271626 A1 AU 2006-271626 20060721; CA
     2616092 A1 CA 2006-2616092 20060721; CN 101228212 A CN
     2006-80026871 20060721; EP 1942130 A2 EP 2006-778464 20060721; EP
     1942130 A2 PCT Application WO 2006-ES70111 20060721; CN 101228212
     A PCT Application WO 2006-ES70111 20060721; JP 2009502765 T PCT
     Application WO 2006-ES70111 20060721; CA 2616092 A1 PCT
     Application WO 2006-ES70111 20060721; MX 2008000830 A1 PCT
     Application WO 2006-ES70111 20060721; CA 2616092 A1 PCT Nat. Entry
     CA 2006-2616092 20080121; JP 2009502765 T JP 2008-521998 20060721;
     MX 2008000830 A1 MX 2008-830 20080117; US 20100034789 A1 PCT
     Application WO 2006-ES70111 20060721; US 20100034789 A1 US
     2009-989157 20090910
FDT  AU 2006271626 A1 Based on WO 2007010080 A; EP 1942130 A2 Based on
     WO 2007010080 A; CN 101228212 A Based on WO 2007010080 A; JP
     2009502765 T Based on WO 2007010080 A; CA 2616092 A1 Based on WO
     2007010080 A; MX 2008000830 A1 Based on WO 2007010080 A
PRAI ES 2005-1810          20050722
IPCI A61K [,S]; A61K0031-695 [I,A]; A61K0031-695 [I,C]; A61K0031-7088
     [I,A]; A61K0031-7088 [I,C]; A61K0031-713 [I,A]; A61K0031-713
     [I,C]; A61K0047-24 [I,A]; A61K0047-24 [I,C]; A61K0047-48 [I,A];
     A61K0047-48 [I,A]; A61K0047-48 [I,A]; A61K0047-48 [I,C];
     A61K0047-48 [I,C]; A61K0047-48 [I,C]; A61K0048-00 [I,A];
     A61P0025-00 [I,C]; A61P0025-28 [I,A]; A61P0031-00 [I,A];
     A61P0031-00 [I,C]; A61P0031-04 [I,A]; A61P0031-10 [I,A];
     A61P0031-12 [I,A]; A61P0031-18 [I,A]; C07F0007-00 [I,A];
     C07F0007-00 [I,C]; C07F0007-00 [I,C]; C07F0007-00 [I,C];
     C07F0007-08 [I,A]; C07F0007-18 [I,A]; C07F0007-18 [I,A];
     C07F0007-18 [I,A]; C07H0021-00 [I,C]; C07H0021-02 [I,A];
     C07H0021-04 [I,A]; C07K0014-435 [I,C]; C07K0014-62 [I,A];
     C08B0037-00 [I,C]; C08B0037-10 [I,A]; C08F0230-00 [I,C];
     C08F0230-08 [I,A]; C08G0077-00 [I,C]; C08G0077-00 [I,C];
     C08G0077-00 [I,C]; C08G0077-00 [I,C]; C08G0077-52 [I,A];
     C08G0077-52 [I,A]; C08G0077-60 [I,A]; C12N0015-09 [N,A];
     C12N0015-09 [N,C]; C12N0015-87 [I,A]; C12N0015-87 [I,A];
     C12N0015-87 [I,C]; C12N0015-87 [I,C]; C12N0015-87 [I,C];
     A61K0047-48 [I,C]; A61K0048-00 [I,C]; C07F0007-00 [I,C]
EPC  A61K0009-107D; A61K0047-24; A61K0047-48K6
ICO  K61K0047:34
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NCL NCLM 424/093.210
NCLS 514/044.00A; 514/044.00R; 525/054.100; 525/054.200; 526/279.000; 530/303.000; 536/021.000; 536/023.100; 536/024.500; 556/424.000; 556/431.000
FCL A61K0031-695; A61K0031-713; A61K0047-24; A61K0047-48; A61K0048-00; A61P0025-28; A61P0031-00; A61P0031-04; A61P0031-10; A61P0031-12; A61P0031-18; C07F0007-18 W (CSP); C08G0077-60; C12N0015-00 A
Main: C07F0007-18 W (CSP)
Secondary: A61K0031-695; A61K0031-713; A61K0047-24; A61K0047-48; A61K0048-00; A61P0025-28; A61P0031-00; A61P0031-04; A61P0031-10; A61P0031-12; A61P0031-18; C08G0077-60
Additional:C12N0015-00 A
FTRM 4B024; 4C076; 4C084; 4C086; 4C201; 4H049; 4J246; 4B024/AA01; 4C086/AA01; 4C086/AA02; 4C086/AA03; 4C086/AA04; 4J246/AA07; 4C084/AA13; 4C076/AA95; 4J246/AB14; 4B024/BA80; 4C076/BB11; 4J246/BB13.0; 4J246/BB13.X; 4J246/BB14.X; 4B024/CA01; 4J246/CA01.U; 4J246/CA01.X; 4J246/CA05.0; 4J246/CA05.E; 4J246/CA05.U; 4J246/CA05.X; 4B024/CA11; 4J246/CA24.X; 4J246/CA56.0; 4J246/CA56.M; 4J246/CA56.X; 4J246/CA76.0; 4J246/CA76.E; 4J246/CA76.M; 4J246/CA76.X; 4J246/CA77.0; 4J246/CA77.U; 4J246/CA77.X; 4J246/CB02; 4C076/CC03; 4C076/CC29; 4C076/CC47; 4C086/DA44; 4C076/DD64; 4C086/EA16; 4C076/EE59; 4J246/FA15.2; 4J246/FA22.1; 4J246/FA22.2; 4J246/FC12.1; 4J246/FC16.1; 4J246/FC16.2; 4J246/FD10; 4C076/FF63; 4C076/FF68; 4B024/GA11; 4B024/HA17; 4C086/HA28; 4J246/HA52; 4C086/MA02; 4C084/MA05; 4C086/MA05; 4C084/MA66; 4C086/MA66; 4C084/NA13; 4C086/NA13; 4C086/NA14; 4H049/VP09; 4H049/VP10; 4H049/VQ20; 4H049/VQ35; 4H049/VR22; 4H049/VR24; 4H049/VR42; 4H049/VS03; 4H049/VS12; 4H049/VU06; 4H049/VU20; 4H049/VU36; 4H049/VW02; 4H049/VW38; 4C086/ZA02; 4C084/ZA02.1; 4C086/ZA16; 4C084/ZA16.1; 4C086/ZB33; 4C084/ZB33.1; 4C086/ZB35; 4C084/ZB35.1; 4C086/ZC55; 4C084/ZC55.1
AB WO 2007010080 A2 UPAB: 20090213
NOVELTY - Branched-chain carbosilane dendrimers (I) that have amino groups (primary, secondary, tertiary or quaternary) at the end of the branches are new.
DETAILED DESCRIPTION - Branched-chain carbosilane dendrimers (I) that have amino groups (primary, secondary, tertiary or quaternary) at the end of the branches are new. They have formulae Si(Alq1-Si(R13-p)-Xp)4 (first generation) Si(Alq1-Si(R13-m)-(Alq2-Si(R23-p)-Xp)m)4 (second generation) or Si(Alq1-Si(R13-m)-(Alq2-Si(R23-n)-(Alq3-Si(R33-p)-Xp)n)m)4 (third generation) or analogous structures for higher generations, where a formula for generation i is produced by substituting Xp in the preceding generation by Alqi-Si(Ri)3-p-Xp, ending finally in Ri-13-z.
all Alq independently along the chains = 2-4C alkenyl;
R1 to Ri independently = Me or Ph;
X = residue containing at least one amino ;
p = 1-3;
m, n...z independently = 1-3
INDEPENDENT CLAIMS are included for:
(1) method for preparing (I); and
(2) kit for increasing the rate of transfection by a (poly)anionic molecule (II) at physiological pH that contains at least one (I) and (II)
ACTIVITY - Virucide; Neuroprotective; Anti-HIV; Antibacterial: Fungicide; Nootropic.
No biological data given.
MECHANISM OF ACTION - Interference with viral life cycle or bacterial cell walls; inhibition of protein aggregation.
USE - (I) are useful (a) as carriers for (poly)anionic molecules, particularly nucleic acids (antisense DNA, plasmid/viral DNA or interfering RNA); also pharmaceuticals that have a negative charge at physiological pH); (b) as active agent for prevention/treatment of diseases caused by viruses or prions, specifically HIV, or by bacteria or fungi; or where caused by aggregation of proteins (Alzheimer's disease); (c) to generate an immune response against a disease induced by an organism that contains a peptide or ligand residue linked to (I); and (d) for fixing nucleic acid to surfaces, e.g. of microchips.
ADVANTAGE - When formulated with (I), DNA shows reduced interaction with plasma proteins and cell surfaces, so controlled release of the DNA is facilitated.
TECH PHARMACEUTICALS - Preferred Composition: This contains at least

one (I) plus at least one (poly)anionic compound (II), particularly a nucleic acid or its **derivative** (e.g. antisense DNA, double-stranded DNA (plasmid or viral) or interfering RNA); or a pharmaceutical that carries a negative charge at physiological pH, e.g. acetylsalicylic acid, indomethacin, penicillin, methotrexate, heparin or insulin. POLYMERS - Preferred **Dendrimers**: All Alq are ethylene or, especially propylene; all m, n...z = 2; all R = Me. The amino-containing terminal groups are:
(a) attached through oxygen, most especially they are -OCH2CH2NMe2; -OCH2-phenyl(3,5-di(OCH2CH2NMe2)2) or -O(CH2CH2NMe-CH2CH2NMe2;
(b) are attached directly, particularly as -CH2CH2CH2NH2 or
(c) the amino groups are quaternized as trimethylammonium iodide groups. Alternatively, the terminal residue contains at least one amino group that forms part of an antigen, especially a peptide. Preparation: Reaction of tetrachlorosilane with BrMg(CH2)aCH=CH2 (Y) produces the base **dendrimer** Si((CH2)-aCH=CH2)4. This was reacted with HSi(R1)3-mClm (X) to form a first generation reactant, which could be reacted with additional (X) to give higher generation products. Optionally new branching points are introduced by reacting terminal Si-Cl with (Y), followed by reaction with (X). Terminal amino groups are introduced by (a) alcoholysis of Si-Cl bonds with an aminoalcohol or (b) converting Si-Cl to Si-H then hydrosilylation reaction of the product with an amine containing an olefinic double bond.
a = 0-2, at each occurence.

ABEX ADMINISTRATION - Compositions containing (I) are administered by iontophoresis; transdermally; by inhalation or injection; also as coatings on prostheses or stents. No doses are suggested.
EXAMPLE - Reaction of Si(CH2CH2CH2Si(Me)-2Cl)4 (0.85 g) in ether (50 ml) with triethylamine (0.86 ml) and N,N-dimethylethanol (0.6 ml) for 1 hour at room temperature gave, after work up, 0.98 g (84%) of Si(CH2CH2CH2Si(Me)-2-OCH2CH2NMe2)4 as a pale yellow oil.

FS CPI

MC CPI: A06-A00E3; A12-V01; B04-C02E1; **B04-C03E**; B04-C03F; B04-E01; B04-E06; B04-E07C; B04-E08; B04-J03A; B06-D01; B06-D09; B10-C03; B12-M19B; B14-A01; B14-A02; B14-A04; B14-N16; D05-H10

L144 ANSWER 35 OF 50 WPIX COPYRIGHT 2010 THOMSON REUTERS on STN

AN 2007-232127 [200723] WPIX Full-text

DNC C2007-084374 [200723]

DNN N2007-172600 [200723]

TI Lens composition, useful as e.g. a lens replacement materials or lens substitute materials, comprises nanoparticles and reversible or a non-reversible hydrogel

DC A89; A96; B07; D22; P73

IN CARNAHAN M A; CLARK J A; GRINSTAFF M W; STOCKMAN K E

PA (HYPE-N) HYPERBRANCH MEDICAL TECHNOLOGY INC

CYC 112

PI WO 2007005249 A2 20070111 (200723)* EN 403[0]
WO 2007005249 A3 20090416 (200926) EN

ADT WO 2007005249 A2 WO 2006-US23723 20060619; WO 2007005249 A3 WO 2006-US23723 20060619

PRAI US 2005-694944P 20050629
US 2005-694944P 20050629

IPCI A61K0031-74 [I,A]; A61K0031-74 [I,C]; B32B0027-14 [I,A]; B32B0027-14 [I,C]; C08K0003-00 [I,C]; C08K0003-10 [I,A]; C08K0003-22 [I,A]; G02B0001-04 [I,A]; G02B0001-04 [I,C]

AB WO 2007005249 A2 UPAB: 20090430
NOVELTY - Lens composition (I) comprises nanoparticles and reversible or a non-reversible hydrogel.
DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for:
(1) a kit for the preparation of a lens comprising a polymerizable **dendrimeric** compound, nanoparticle and a system for delivering the mixture to a lens bag of a patient;

(2) preparing the lens composition comprising treating a first mixture comprising a polymerizable dendrimeric compound and nanoparticles with a polymerization agent to form a second mixture that forms a non-reversible hydrogel;

(3) preparing a titanium dioxide nanoparticle functionalized with alpha hydroxy alkanoic acid comprising admixing a titanium dioxide nanoparticle with an alpha-hydroxy alkanoic acid to form a functionalized nanoparticle, or admixing an N-(trialkoxysilylalkyl)dialkylene triamine with a 1-hydroxy-2,3-epoxyalkyl group to form a silanating agent and admixing the silanating agent with a titanium dioxide nanoparticle;

(4) a nanoparticle comprising a core coated with silica or functionalized with an organic compound, where the core comprises a metal, metal oxide, metal sulfide, zeolite, ceramic, diamond, carbon and/or protein; and

(5) a stable nanoparticle that remains dispersed when placed in an aqueous solution, where the aqueous solution has a pH in the range of 6-8.

USE - (I) is useful as a lens replacement materials, lens substitute materials, corneal inlays and intraocular lenses (claimed).

ADVANTAGE - (I) swells less than 100% in aqueous solution (claimed). (I) has biodegradability, biocompatibility and mechanical strength.

TECH ORGANIC CHEMISTRY - Preferred Components: The non-reversible hydrogel comprises a dendrimeric macromolecule or polymer such as polyacrylate, siloxane, silicone, polymethylmethacrylate, styrene-ethylene-butylene-styrene block copolymer, polyvinyl alcohol, polyurethane or a copolymer of 2-hydroxyethyl methacrylate or 6-hydroxyhexyl methacrylate. The non-reversible hydrogel comprises a dendrimeric macromolecule formed by treating 10 compounds e.g. dendrimeric compounds of formula (A1-X1-B1-X1A2 or R17-N(R18-C(R11R19)n1-C(R19)(NR18R17)-CO-X5-C(R20R20)v-(-O-C(R20R20)v)w-O-C(R20R20)v-X5-CO-C(R11R19)n1-C(R19)(NR18R17)-C(R11R19)n1-NR18R17) with a polymerization agent such as UV light (preferred), visible light, amide compounds of formula (R1-II-N(R2-II)-C(R3-IIR3-II)z-C(R3-II)(NR1-IIR2-II)-CO-N(R2-II)-C(R3-II)(COO-R4-II))-C(R3-IIR3-II)z-N(R2-II)(R1-II)), alkyl compounds of formulae (R1-III-B1-III-R1-III and A1-X1-B1-X1-A2) or amine compounds of formula (R23-N(R24-C(R25R25)n2-C(R25))(NR23R24)-CO-X6-C(R26R26)v-(-O-C(R26R26)v)w-O-C(R26R26)v-X6-CO-C(R25)(NR23R24)-C(R25R25)n2-NR23R24). The wavelength of the light is 400-600 (488-514) nm. The nanoparticles are a metal, metal oxide, metal sulfide, zeolite, protein, ceramic and/or silica (preferably zinc oxide, aluminum oxide, diamond, zirconium dioxide, cerium dioxide, calcium oxide or carbon-based nanoparticles). The nanoparticles: are a metal oxide coated with an organic compound, a metal sulfoxide coated with an organic compound or a ceramic material coated with an organic compound (preferably a metal oxide coated with a layer of silica or a ceramic material coated with a layer of silica); comprises a core coated with a layer of silica or functionalized with an organic compound, and the core comprises titanium dioxide, zinc oxide, aluminum oxide, diamond, zirconium dioxide, cerium dioxide or calcium oxide; have a core comprising titanium dioxide, and the core is functionalized with lactic acid or a trimethoxysilyl group; are covalently bonded to a polymer in the hydrogel; are stable, and the nanoparticles remain dispersed when placed in an aqueous solution having a pH in the range of 6.5-7.5.

The N-(trialkoxysilylalkyl)dialkylene triamine is N,1-(3-trimethoxysilylpropyl)diethylene triamine. The 1-hydroxy-2,3-epoxyalkyl group is glycidol. The core comprises titanium dioxide, zinc oxide, aluminum oxide, gold, diamond, silver oxide, zirconium dioxide, cerium dioxide, calcium oxide, protein, ceramic or carbon. The core is coated with silica.

A1 = cyclic compounds of formula (a);

B1 = 12 carbonyl compounds e.g. -CO-C((R1)2)p1-CO-, -C-((R1R2))p2-CO- or -CO-N(R12)-C((R1)2)p1-CO-;

A2 = alkyl, aryl, aralkyl, Si(R3)3, compound (a), pyrrole

compounds of formula (b) or ether compounds of
formula -(-O-(CR1R1)v2)w2-O-R3;
A3 = (hetero)alkyl, (heterocycloalkyl, (hetero)aryl or aralkyl;
Y1 = R4, A4, -CO-C(R1R1)p2-C(R3)=C(R1)2 or -CO-C(R1R1)p1-CO-Z1;
Z1 = X1-R4, E or compound (a);
Y2 = R5, A4, -CO-C(R1R1)p2-C(R3)=C(R1)2 or -CO-C(R1R1)p1-CO-Z1;
Z2 = X1-R5, E, -CO-C(R1R1)p2-C(R3)=C(R1)2 or -CO-C(R1R1)p1-CO-Z1;
Y3 = R6, A4, -CO-C(R1R1)p2-C(R3)=C(R1)2 or -CO-C(R1R1)p1-CO-Z1;
Z3 = X1-R6, E or compound (a);
Y4 = R7, A4, -CO-C(R1R1)p2-C(R3)=C(R1)2 or -CO-C(R1R1)p1-CO-Z1;
Z4 = X1-R7, E, -CO-C(R1R1)p2-C(R3)=C(R1)2 or -CO-C(R1R1)p1-CO-Z1;
Y5 = R8, A4, -CO-C(R1R1)p2-C(R3)=C(R1)2 or -CO-C(R1R1)p1-CO-Z1;
Z5 = X1-R8, E or -CO-C(R1R1)p2-C(R3)=C(R1)2 or
-CO-C(R1R1)p1-CO-Z1;
Y6 = R9, A4, -CO-C(R1R1)p2-C(R3)=C(R1)2 or -CO-C(R1R1)p1-CO-Z1;
R1 = H, alkyl or halo;
R2 = H, alkyl, OH, N(R10)2, SH, hydroxyalkyl or (C(R1)2)dR16;
R3 = alkyl, aryl or aralkyl;
R4-R9 = H;
R10, R12, R13, R22 = H, alkyl, aryl or aralkyl;
R11 = H, OH, N(R10)2, SH, alkyl, hydroxyalkyl or (C(R1)2)dR16;
R14 = H, alkyl or CO2R10;
R15 = H, alkyl or OR10;
R16 = phenyl, hydroxyphenyl, pyrrolidyl, imidazolyl, indolyl,
N(R10)2, SH, S-alkyl, CO2R10, C(O)N(R10)2 or C(NH2)N(R10)2;
d, n = 1-6;
p1, z1 = 1-8;
p2 = 0-4;
p3, x = 1-3;
p4 = 0-3;
t = 2-5 in accord with the rules valence;
v1, v2 = 2-4;
w1, w2 = 5-700, inclusive;
y = 0-5;
z2, z3, p5 = 1-5;
X1, X2 = O or N(R10);
X3 = O, N(R10) or C(R15)(CO2R10);
A4 = NH2-CH(CH3)-CO-, NH2-CH(CH2)3-NH-C(=NH)-NH2-CO-,
NH2-CH(CH(CH3)-CH2-CH3)-CO- or NH2-CH(CH2OH)-CO- (provided that
R4-R9 only occurs once);
X5 = O or N(R22);
R17 = H, (C(R19)2)hSH, C(O)(C(R19)2)hSH, CO2(C(R19)2)hSH or
C(O)N(R18)(C(R19)2)hSH;
R18, R20 = H or alkyl;
R19 = H, halo or alkyl;
R21 = H, (C(R19)2)hSH, C(O)(C(R19)2)hSH, CO2(C(R19)2)hSH or
C(O)N(R18)(C(R19)2)hSH;
n1, h = 1-8;
v = 2-4;
w = 5-700, inclusive;
E = 21 heteroaryl compounds e.g. purin compounds of
formula (c-e);
R1-II = H or -CO-C(R3-II)(N(R5-IIR2-II))-C(R3-IIR3-II)z-N(R2-IIR5-
II);
R2-II = H or alkyl;
R3-II = H, halo or alkyl;
R4-II = alkyl, aryl, aralkyl or
-CO-C(R3-II)(N(R2-IIR2-II))-C(R3-IIR3-II)z-N(R2-IIR2-II);
R5-II = H;
z = 1-8;
R1-III = (CR2-III)2)xC(O)H, C(O)(C(R2-III)2)yC(O)H,
(C(R2-III)2)xC(O)R3-III or C(O)(C(R2-III)2)yC(O)R3-III;
R2-III = H, alkyl or halo;
R3-III = fluoroalkyl, chloroalkyl, CH2NO2, pyrol-2,5-dione
N-oxide;
B-1-III = (hetero)alkyl diradical or -(O-C(R2-IIIR2-III)v)w-O-;
x = 0-8;

y = 1-8;
v = 2-4;
w = 5-700, inclusive;
A2 = alkyl, aryl, aralkyl, Si(R3)3, compound (a) or (b);
A3 = (hetero)alkyl, (hetero)cycloalkyl, (hetero)aryl or aralkyl;
Y1 = R4;
n = 1-6;
p1 = 1-8;
p2 = 0-4;
p3 = 1-3;
p4 = 0-3;
d = 1-6;
t = 2-5 in accord with the rules of valence;
v1, v2 = 2-4;
w1, w2 = 5-700, inclusive;
x = 1-3;
y = 0-5;
z1 = 1-8;
z2, z3 = 1-5;
X1, X2 = O or N(R10);
X3 = O, N(R10) or C(R15)(CO2R10);
E = H, (C(R1)2)nC(O)H;
X6 = O or N(R30);
R24 = H or alkyl;
R25 = H, halo or alkyl;
R26 = H or alkyl;
R27 = H, alkyl or halo;
R28 = H, alkyl, OH, N(R30)2, SH or hydroxyalkyl;
R29 = H, OH, N(R30)2, SH, alkyl or hydroxyalkyl;
R30, R31 = H, alkyl, aryl or aralkyl;
Z6 = E1 or R32-X6-(R27R27)n2-C(X6)-(C(R27R27)n2-X6-R32)m1;
Z7 = E1 or R33-X6-(R27R27)n2-C(X6)-(C(R27R27)n2-X6-R33)m1;
R33 = 10 amine compounds e.g. -CO-(R27R27)p6-CO-E1,
-CO-C(R28R27)p7-E1 or -CO-C(R27R29)p6-N(R30)-CO-E1;
R34 = H, alkyl or CO2R30;
p6 = 1-8;
p7 = 0-4;
p8 = 1-3;
p9 = 0-3;
n2, j = 1-8;
m1 = 1-2;
v = 2-4; and
w = 5-700, inclusive.

Preferred Composition: (I) comprises 1-40 (preferably 5-15) wt.% of the nanoparticles. The diameter of the microparticles is less than about 50 (preferably less than 20) nm. The lens: is an intraocular lens, accommodating intraocular lens or endocapsular lens; is transparent; or swells less than 100% in aqueous solution. (I) further comprises less than 30% of the thiol groups present in the dendrimeric macromolecule form a disulfide bond. (I) comprises less than 15 (preferably 1)% or 1-70 (preferably 5-50)% of the thiol groups present in the dendrimeric macromolecule form a disulfide bond. The reversible hydrogel further comprises a polymer such as a polyacrylate, siloxane, silicone, polymethylmethacrylate, styrene-ethylene-butylene-styrene block copolymer, polyvinyl alcohol, polyurethane, and a copolymer of 2-hydroxyethyl methacrylate or 6-hydroxyhexyl methacrylate.

Preferred Method: The system is syringe. The kit further comprises: capulorrhexis plug; desiccant; an inert atmosphere to prevent reaction of the dendrimeric compound or the nanoparticles with atmospheric molecules; and the polymerization agent. The kit has a sterility assurance level of at least about 10-3 (preferably 10-5). The first mixture further comprises water. The method further comprises the steps of sterilizing the hydrogel. The sterilizing is performed by treatment with ethylene oxide, hydrogen peroxide, heat, gamma irradiation, electron beam

irradiation, microwave irradiation, visible light irradiation or filtration. The method further comprises the step of administering the first mixture to a lens bag of a patient. The first mixture is an aqueous buffer solution that has a pH between about 5.5-8.5 (preferably 7.4). The step of administering the first mixture or the second mixture to a lens bag of a patient using a syringe. The patient is a primate, equine, feline or canine (preferably human). The method comprises less than 30 (preferably 1) % of the thiol group present in the hydrogel form a disulfide bond. The process is carried out at 50-100degreesC. The alpha-hydroxy alkanoic acid is an alpha-hydroxy 1-6C alkanoic acid (preferably lactic acid).

ABEX EXAMPLE - A gel was prepared by mixing an aqueous solution of the LysLys(Lys)OMe dendron with the ((G1)-PGLSA-MA)2-polyethylene glycol. For example, the dendron dissolved at 33% w/w in phosphate buffer pH was 8.2 (10 mg dendron in 20 mul) and the ((G1)-PGLSA-MA)2-polyethylene glycol was dissolved at 50% w/w (50 mg) in the same buffer. These two solutions were mixed together to provide a gel.

FS CPI; GMPI

MC CPI: A08-R01; A11-C02B; A12-V02A; E04-C03E; B04-N04; B05-A01B; B05-A03A; B05-A03B; B05-B02C; B05-C06; B11-C04A; B11-C12; B12-M02G; B12-M11N; B12-M16; D09-C01A

L144 ANSWER 36 OF 50 WPIX COPYRIGHT 2010 THOMSON REUTERS on STN

AN 2008-B10928 [200807] WPIX Full-text

CR 1993-405297; 2003-658267; 2005-371336

DNC C2008-030674 [200807]

TI New di-tert-butyl 4-nitro-4-(2-tertbutoxycarbonyl)ethyl)heptanedioate and di-tert-butyl 4-amino-4-(2-(tert-butoxycarbonyl)ethyl)heptanedioate, as building block for cascade polymers useful in e.g. pharmaceutical chemistry

DC A41; B03; E15; E16

IN BEHERA R K; MOOREFIELD C N; NEWKOME G R

PA (BEHE-I) BEHERA R K; (MOOR-I) MOOREFIELD C N; (NEWK-I) NEWKOME G R; (UYSF-C) UNIV SOUTH FLORIDA

CYC 1

PI US 20070142663 A1 20070621 (200807)* EN 12[0]
US 7589229 B2 20090915 (200961) EN

ADT US 20070142663 A1 Cont of US 1992-871403 19920421; US 20070142663 A1 Cont of US 1993-120640 19930913; US 20070142663 A1 Cont of US 1994-267500 19940629; US 20070142663 A1 Div Ex US 1995-375187 19950118; US 20070142663 A1 CIP of US 1995-477912 19950607; US 20070142663 A1 Cont of US 1996-705157 19960829; US 20070142663 A1 Div Ex US 2003-462397 20030616; US 20070142663 A1 US 2007-698422 20070126; US 7589229 B2 Cont of US 1992-871403 19920421; US 7589229 B2 Cont of US 1993-120640 19930913; US 7589229 B2 Cont of US 1994-267500 19940629; US 7589229 B2 Div Ex US 1995-375187 19950118; US 7589229 B2 CIP of US 1995-477912 19950607; US 7589229 B2 Cont of US 1996-705157 19960829; US 7589229 B2 Div Ex US 2003-462397 20030616; US 7589229 B2 US 2007-698422 20070126

FDT US 20070142663 A1 Div ex US 7183426 B; US 7589229 B2 Div Ex US 7183426 B

PRAI US 2007-698422 20070126
US 1992-871403 19920421
US 1993-120640 19930913
US 1994-267500 19940629
US 1995-375187 19950118
US 1995-477912 19950607
US 1996-705157 19960829
US 2003-462397 20030616

IPCI C07C0205-00 [I,A]; C07C0205-00 [I,C]; C07C0227-00 [I,C]; C07C0227-18 [I,A]

EPC C07C0229-24; C07C0233-63; C07C0237-22

NCL NCLM 560/156.000; 560/171.000
NCLS 560/157.000; 560/171.000

AB US 20070142663 A1 UPAB: 20090923
NOVELTY - Di-tert-butyl 4-nitro-4-(2- tertbutoxycarbonyl)ethyl)heptanedioate (I) and di-tert-butyl 4-amino-4-(2-(tert-butoxycarbonyl)ethyl)heptanedioate (II) are new.
DETAILED DESCRIPTION - INDEPENDENT CLAIMS are included for the following:
(1) preparation (M1) of nitro monomer (I) and amine monomer (II);
(2) new adamantane compound of formula (Ia); and
(3) preparation (M2) of (Ia) involving a1) reacting adamantanecarbonyl chloride (i.e. for preparing one directional polymer) or adamantane-1,3,5,7-tetracarbonyl tetrachloride (i.e. for preparing four-directional polymer) with amine monomer (II) to form corresponding triester or dodecaester, b1) hydrolyzing the triester to a triacid, and c1) optionally further peptide coupling amine monomers (II) to each of the acid moieties to form the dendrimer.
R1 - R4=H or cascade arborol branches.
Provided that, at least one of the R1 - R4 is a cascade arborol branch.
USE - As building block for cascade polymers useful in e.g. pharmaceutical chemistry, and for manufacturing micelles.
ADVANTAGE - The amino and nitro monomers do not cyclize and easily forms cascade system for producing macromolecular monomers through tetradirectional polymers, particularly on an adamantane, methane or four-directional core. The bulky nature of the tert-butyl ester in the compound prevent lactam formation during reduction of the nitro functionality; reduces number of overall steps for cascade synthesis; provides easy preparation on a large scale; facile hydrolysis to the desired acids in nearly quantitative yield; and the poly tert-butyl esters formed are easily purified.

TECH ORGANIC CHEMISTRY - Preparation (claimed): Preparation (M1) of amine monomer (II) involves reacting nitromethane and tert-butyl acrylate by nucleophilic addition to form the nitro monomer (I) and reducing the nitro monomer (I); or treating nitromethane with tert-butyl acrylate to form nitro monomer (I), re-crystallizing nitro monomer (I) to remove impurities; and hydrogenating the nitro monomer (I) to the amino monomer (II). The method (M1) further involves reacting the methyl nitromethane and tert-butyl acrylate in the presence of dimethoxyethane and Triton-B at a 70 - 80degreesC for about one hour to give nitro monomer (I); and reducing nitro monomer (I) to the amine monomer (I) with T-1 Raney nickel at 60degreesC. The hydrogenating step is conducted using T-1 Raney Nickel at 45 - 55degreesC, followed by removing solvent in vacuum below 50 degrees C.
Preferred Process: In (M2), reaction in (a1) is conducted in the presence of triethylamine and benzene at 25 degrees C for 20 hours. Hydrolysis in step (b1) is conducted in the presence of 96% formic acid at 25 degrees C for 20 hours. The peptide coupling in step (c1) is conducted in the presence of dicyclohexyl-carbodiimide (DCC), 1-hydroxybenzotriazole (1-HBT) and dimethyl formamide (DMF) at 25 degrees C for 24 hours.

ABEX SPECIFIC COMPOUNDS - 8 compounds are specifically claimed e.g. 1-((N-(3-(tert-butoxycarbonyl)-1,1-bis(2-tertbutoxycarbonyl)ethyl)propyl)amino)carbonyl)adamantane; 1-((N-)3-((N-(3-(tert-butoxycarbonyl)-1,1-bis(2-(tert-butoxycarbonyl)ethyl)propyl)-amino)carbonyl)-1,1-bis(2-((N-(3-(tert-buxoxycarbonyl)-1,1-bis(2-(tert-butoxycarbonyl)-ethyl)propyl)amino)carbonyl)ethyl)propyl)amino)carbonyl)adamatane; 1-((N-(3-((N-(3-carboxy-1,1-bis(2-carboxyethyl)propyl)amino)carbonyl)-1,1-bis(2-((N-(3-carboxy-1,1-bis(2-carboxyethyl)propyl)-amino)carbonyl)-ethyl)propyl)amino)carbonyl)-adamantane; 1,3,5,7-tetrakis((N-(3-(tert-butoxycarbonyl)-1,1-bis(2-(tert-butoxycarbonyl)ethyl)propyl)amino)carbonyl)-adamantane (structure of formula (Ix); 1,3,5,7-tetrakis((N-(3-carboxy-1,1-bis(2-carboxyethyl)propyl)amino)-carbonyl)-adamantane.
EXAMPLE - A stirred solution of nitromethane (6.1 g), Triton B (RTM: benzyltrimethylammonium hydroxide), 50% in methanol heated to 65 - 70degreesC tert-Butyl acrylate (39.7 g) was added portion wise to maintain the temperature at 70 - 80degreesC for one hour and worked-up to give di-tert-butyl

4-nitro-4-(2-tertbutoxycarbonyl)ethyl)heptanedioate (I) (33 g, 72% yield). A solution of compound (I) (4.46 g) in absolute ethanol (100 ml) with T-1 Raney nickel (4.0 g) was hydrogenated at 50 psi and 60degreesC for 24 hours to give di-tert-butyl 4-amino-4-(2-(tert-butoxycarbonyl)ethyl)heptanedioate (II) (3.7 g; 88% yield). A solution of 1-adamantanecarbonyl chloride (1 g), (II)) (2.1 g), and triethyl amine (600 mg) in dry benzene (25 ml) was stirred at 25degreesC for 20 hours to give 1-((N-(3-(tert-butoxycarbonyl)-1,1-bis(2-tertbutoxycarbonyl)ethyl)propyl)amino)carbonyl)adamantine (2 g; 71% yield).

FS CPI

MC CPI: A01-E05; A01-E12; A05-F; B04-C03E; B09-D01; E09-D01; E11-F01; E11-F03; E11-F04; E11-F07A; N02-C01; N07-B02

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AN 2007-083083 [200708] WPIX Full-text

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DNC C2007-031325 [200708]

TI New dendritic polymer useful for e.g. coating, caulking, and filler formulations for e.g. paper, latex, pigments, and polymers, coating for containers, stents, or medical devices, and carrier for e.g. prodrug or drug (e.g. polymer drug)

DC A96; A97; B02; B04; D16; D21; D22; F09; G02; L03

IN CHAUHAN A; CHAUHAN A S; DE MATTEI C R; DEMATTEI C R; DEMATTEL C; DEMATTEL C R; HEINZELMANN J; HEINZELMANN J R; HUANG B; PULGAM V; PULGAM V R; RENYA L A; REYNA L; REYNA L A; SINGH C A; SVENSON S; SWANSON D; SWANSON D R; TOMALIA D; TOMALIA D A; ZHURAVEL M; ZHURAVEL M A; DEUMATEI K A; HAINJELMAN J A; HUHANG B; JURABEL M E; PULGAEM B R; REINA R E; SEUBENSEUN S; SEUWANSEUN D A; TOMALRIA D E

PA (DEND-N) DENDRITIC NANOTECHNOLOGIES INC

CYC 113

PI WO 2006115547 A2 20061102 (200708)* EN 306[253]
AU 2005331023 A1 20061102 (200736) EN
IN 2006CN04302 A 20070615 (200765) EN
AU 2005331023 B2 20070301 (200767)# EN
KR 2007066902 A 20070627 (200803) KO
US 20070298006 A1 20071227 (200803) EN
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EP 1877103 A2 20080116 (200807) EN
BR 2005012282 A 20080226 (200819) PT
JP 2008545621 T 20081218 (200903) JA 221
TW 2007028406 A 20070801 (200937) ZH
WO 2006115547 A3 20090604 (200938) EN
CN 101443048 A 20090527 (200941) ZH
KR 954677 B1 20100427 (201031) KO

ADT WO 2006115547 A2 WO 2005-US47635 20051221; AU 2005331023 B2 Div Ex AU 2005-317193 20050420; AU 2005331023 A1 AU 2005-331023 20051221; AU 2005331023 B2 AU 2005-331023 20051221; BR 2005012282 A BR 2005-12282 20051221; CN 101443048 A CN 2005-80049281 20051221; EP 1877103 A2 EP 2005-857843 20051221; AU 2005331023 A1 PCT Application WO 2005-US47635 20051221; IN 2006CN04302 A PCT Application WO 2005-US47635 20051221; US 20070298006 A1 PCT Application WO 2005-US47635 20051221; EP 1877103 A2 PCT Application WO 2005-US47635 20051221; BR 2005012282 A PCT Application WO 2005-US47635 20051221; JP 2008545621 T PCT Application WO 2005-US47635 20051221; WO 2006115547 A3 WO 2005-US47635 20051221; CN 101443048 A PCT Application WO 2005-US47635 20051221; TW 2007028406 A TW 2006-138387 20061018; IN 2006CN04302 A IN 2006-CN4302 20061122; US 20070298006 A1 US 2006-630044 20061215; KR 2007066902 A KR 2006-131202 20061220; JP 2008545621 T JP 2008-507644

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     20051221; KR 954677 B1 KR 2006-131202 20061220
FDT  AU 2005331023 A1 Based on WO 2006115547 A; AU 2005331023 B2 Based
     on WO 2006115547 A; EP 1877103 A2 Based on WO 2006115547 A; BR
     2005012282 A Based on WO 2006115547 A; JP 2008545621 T Based on WO
     2006115547 A; CN 101443048 A Based on WO 2006115547 A; KR 954677
     B1 Previous Publ KR 2007066902 A
PRAI WO 2005-US13643      20050420
       WO 2005-US47635      20050420
       AU 2005-331023       20051221
       WO 2005-US13864      20050420
IC   ICM A61K048-00
IPCI A01N0025-10 [I,A]; A01N0025-10 [I,C]; A61K0031-403 [I,C];
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     C08J0005-00 [I,C]
IPCR C08G0061-00 [I,C]; C08G0061-12 [I,A]
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NCL  NCLM  424/078.030
     NCLS  424/078.080; 427/240.000; 427/393.500; 435/440.000;
           435/459.000; 435/470.000; 514/772.300; 524/430.000;
           524/440.000; 524/496.000; 525/054.100; 525/055.000;
           525/403.000; 525/419.000; 525/451.000; 525/452.000;
           525/474.000; 525/509.000; 525/534.000; 525/535.000;
           525/540.000
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     A61K0047-48; A61K0009-48; A61P0029-00; A61P0043-00 123;
     C07C0217-28; C07C0217-30; C07C0229-12; C07C0237-10; C07C0309-10;
     C07F0007-10 S; C07F0009-38 E; C08G0059-14; C09B0057-02 A (CSP);
     C09B0067-20 L
FTRM 4C076; 4C084; 4C086; 4C201; 4H006; 4H011; 4H049; 4H050; 4H056;
     4J036; 4C086/AA01; 4H006/AA01; 4H011/AA01; 4H050/AA01; 4C086/AA02;
     4H006/AA03; 4H050/AA03; 4C084/AA17; 4C076/AA22; 4C076/AA53;
     4C076/AA95; 4H011/AB01; 4H006/AB80; 4H050/AB80; 4H006/AB90;
     4H011/AC01; 4J036/AC02; 4H011/AC04; 4J036/AC05; 4H011/AE02;
     4J036/AJ02; 4J036/AJ03; 4J036/AJ05; 4J036/AJ18; 4H011/BA01;
     4C076/BB11; 4C086/BC15; 4H011/BC19; 4H006/BJ50; 4H006/BN10;
     4H006/BP10; 4H006/BP30; 4H006/BT12; 4H006/BU32; 4H006/BV22;
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4J036/CB04; 4J036/CB05; 4J036/CB26; 4J036/CC01; 4J036/CC02;
4C076/CC05; 4C076/EE02.H; 4C076/EE17.H; 4C076/EE59.H; 4C076/FF11;
4C076/FF27; 4C076/FF68; 4C076/GG41; 4J036/JA00; 4J036/JA01;
4J036/JA06; 4C086/MA02; 4C084/MA05; 4C086/MA05; 4C084/MA23;
4C086/MA23; 4C084/MA37; 4C086/MA37; 4C084/MA66; 4C086/MA66;
4C084/NA10; 4C086/NA10; 4C084/NA13; 4C086/NA13; 4C084/NA14;
4C086/NA14; 4C084/NA15; 4C086/NA15; 4H049/VN01; 4H049/VP04;
4H049/VQ59; 4H049/VR24; 4H049/VU31; 4H049/VW02; 4C084/ZB11;
4C086/ZB11

AB WO 2006115547 A2 UPAB: 20090615

NOVELTY - A dendritic polymer (I) is new.

DETAILED DESCRIPTION - A dendritic polymer of formula (FF)x-(C)-(-C((IF)q)H-(BR)p-C((IF)q)H-(EX)m-(TF)z)-Nc-x (I), is new.

(C)=core;

(FF)=focal point functionality component of core;

x=0 or 1-Nc-1;

(BR)=branch cell, which, if p is greater than 1, then (BR) may be same/different moiety;

p=total number of (BR) in dendrimer, and is 1-2000 derived by equation p equals total number of (BR) equals (Nb1/Nb+Nb2/Nb+Nb3/Nb+... Nb-G/Nb) (Nc) equals (SigmaNb-i, where upper limit i equals G-1 and lower limit i equals 0) (Nc);

G=number of concentric (BR) shells (generation) surrounding core;

i=final generation G;

Nb=branch cell multiplicity;

Nc=core multiplicity and is 1-1000;

(IF)=interior functionality, which, if q is greater than 1, then (IF) may be same/different moiety;

q=0 or 1-4000;

(EX)=extender, which, if m is greater than 1, then (EX) may be same/different moiety;

m=0 or 1-2000;

(TF)=terminal functionality, which, if z is greater than 1, then (TF) may be same/different moiety; and

z=number of surface groups from 1 to theoretical number possible for (C) and (BR) for a given generation G, and is derived by equation z equals NcNb-G; and provided that at least one of (EX) or (IF) is present.

INDEPENDENT CLAIMS are also included for:

(1) preparation of (I).

(2) a pharmaceutical/agricultural formulation comprising (I) having diluent(s)/carrier;

(3) a method of treating disease in animal, comprising administering (I) or its salts;

(4) a method of coating solid substrate with polymer solution containing (I), comprising applying solution of (I) to outer surface and exposed inner surface of substrate, removing substrate from contact with the solution, and allowing excess solution to evaporate in air/heat dried;

(5) a method of transfecting eukaryotic cells, by electroporation or applying to surface of cells, polymer solution comprising (I), where (TF) is sufficient to have cationic dendritic surface at 1 picogram-100 mg/ml, and desired oligonucleotides/polynucleic acids; and exposing cells to polymer solution to allow transfection;

(6) a method of delivering genetic material to eukaryotic cells of plants and animals with gene gun comprising (I), and conjugating gold (Au), silver, copper, magnesium, or calcium particle, Au sols, Au atoms, Au containing complexes/molecules, and their clusters, to form polymer-metal conjugate, where maximum dimension of conjugate is 1-1000 nm as carried material (M) or (C), and desired e.g. genetic material, which forms gene transfection particle; and accelerating gene transfection particle toward plant/animal cell with motive force to cause gene transfection particle to penetrate and enter the cell;

(7) a method of drug (including therapeutic and/or diagnostic agents) delivery, comprising administering (I) to animal;

(8) a method of rheological modification of polymer , comprising mixing polymer with (I) in polymer melt/solvent to modify rheological properties of first polymer in molten, solid, dissolved, or dry phase by known methods, where (M) if present is e.g. flame retardant, dye and/or UV absorber, and where solution/dry mixture has (I) (0.0001-50 weight%);

(9) a method of treating skin, hair, and/or nails of animal for cosmetic applications, comprising mixing (I) (0.0001-50 weight%) in cosmetic formulation, and applying the formulation;

(10) a method of calibrating substrate, comprising preparing solution (1 picogram-100 mg/ml) of (I), applying solution to nanometer substrate for size comparison standards, and visualizing substrate by e.g. optical microscopy to reference unknown substrate's size relative to dendritic polymer and/or determining pore size of substrate/filter by determining which size dendritic polymer passes through pore or filter of substrate;

(11) a method of applying disinfectant to surface, comprising applying (I) as solution or in solvent, with or without the presence of other additives for (M) e.g. dyes; and

(12) a kit comprising (I) for use in an assay, and instructions for use.

USE - (I) Is useful in energy and electronics applications, such as in fuel cells (e.g. membranes and catalysts), energy storage (e.g. hydrogen), thermal management for devices, interlayer dielectric, photoresist and nanoresist patterning, telecom devices (e.g. waveguides), photonics, toner compositions with solvent/dry formulations, dyes (e.g. thermochromic dyes), salts, antistatics, surfactants, antioxidants, solvents (e.g. water) or neat, and with other components to yield precipitate free ink that can be deposited on a printing surface, to coat or permeate synthetic and natural fibers useful for e.g. cloth, patterns in cloth, and carpets; coating, caulking, and filler formulations for e.g. paper, latex, pigments, and polymers , coating for containers, stents, medical devices, catheters, and implants, supports for use in separations, filtrations, or size calibrations, compositions for e.g. dental composites, photocurable materials, rheological modifiers, deodorants, and antiamyloidogenic agents, manufacturing computer memory systems, magnetic storage systems, and electronic and photonic transistors, as carriers for e.g. metal ions or particles, magnetic and paramagnetic particles, and alloys, as carrier for prodrug, drug (e.g. small organic drug, polymer drug, biomacromolecular drug, peptide and nucleotides), vaccines, diagnostic agent, imaging agent, and immunosuppressant agent, biomarker, molecular probe, transfection reagent, or environmental assay reagent in vitro, ex vivo, or in vivo applications, and personal care, or cosmetic/nutraceutical carrier/additive (claimed).

ADVANTAGE - (I) Has enhanced thermal stability, improved chemical stability, and/or narrow polydispersity range. It is made by fast, reactive ring-opening chemistry (or other fast reactions) combined with the use of branch cell reagents in a controlled way to rapidly and precisely build dendritic structures, generation by generation, with cleaner chemistry, often single products, lower excesses of reagents, lower levels of dilution, higher capacity method, more easily scaled to commercial dimensions, new ranges of materials, and lower cost. The reactions of polyfunctional branch cell reagents with polyfunctional cores do not lead to gelled, bridged/cross-linked systems/materials even at lower stoichiometries/excesses than normally required for traditional poly(amidoamine) dendrimer systems.

DESCRIPTION OF DRAWINGS - The figure illustrates a three-dimensional projection of dendrimer core -shell architecture for a dendrimer of (I), with components of (C), an interior that has (BR), (IF), and (EX), and number of surface groups (z) that have (TF).

TECH PHARMACEUTICALS - Preferred Material: The carried material is an active agent or pro-drug.

POLYMERS - Preparation (claimed): (I) Is prepared by reacting, as a one pot reaction, (C) with reactive (BR) precursors or preformed (BR) reagents, or hydroxy, mercapto or amino (FF) dendrons, in a solvent at 0-100degreesC until completion to provide (I); by an acrylate-amine reaction system comprising reacting an acrylate functional core with an amine functional extender, and reacting an amine functional extended core reagent with (BR); or by ring-opening reaction system comprising reacting an epoxy functional core with an amine functional extender, and reacting an amine functional extended core reagent with an epoxy functional branch cell reagent.

Preferred Compound: The dendritic polymer is of formula Core-(-(BR)p-(TF)z)-Nc (II).(BR)=must have (IF) moiety present or be able to generate (IF) in situ.

Preferred Component: (TF) and/or (IF) can be associated with any

carried material (M), which may be from one (M) to: for (TF) the maximum possible number of z present on the surface, or for (IF) the maximum void volume and q for (IF) present in the interior. Some or all of TF can be further reacted with (BR) or (EX), to further grow the dendrimer or dendron surface. (FF) is further reacted to provide amides; esters; alkyl-, alkenyl-, alkynyl-, or aryl-ethers, optionally substituted with halogen(s); cyclic ethers (e.g. azacrown ethers, cryptands); porphyrins; thioether; thioester; disulfide; maleimides; phosphines; phosphines; boranes; carboxylic acids and esters and salts; hydrazides; alcohols; aldehydes; acrylates; cyclic anhydrides; aziridines; pyridines; nitriles; alkynes; imidazoles; azides; mercaptoamines; silanes; oxazolines; oxirane; oxetane; oxazines; imines; tosylates; pyrrolidone; cyclic thiolactones; thioranes; azetidines; lactones; azalactones; macrocyclics (e.g. 1,4,7,10-tetraazacyclododecane- 1,4,7,10-tetra(acetic acid) (DOTA), 1,4,7,10-tetraazacyclododecane-1,4,7-tris(acetic acid) (DO3A)); chelating ligands (e.g. diethylenetriaminepentaacetic acid (DTPA)); isocyanates; isothiocyanates; oligonucleotides; aptamers; amino acids; proteins, peptides, cyclopeptides, antibodies and antibody fragments; nucleotides; nucleosides; metals; biotin; streptavidin; avidin; capping groups (e.g. tert-butoxycarbonyl (BOC) or solvent capped); siloxanes or derivatives; and/or substituted derivatives; or groups for click chemistry (e.g. polyazido or polyalkyne functionality).
The dendritic polymer has the physical shape, as determined by Corey-Pauling-Koltun (CPK) models, electron microscopy, or solution characterization, of a sphere, rod, random hyperbranched, dendrigraft, or core shell (tecto) dendrimer, or dendron.
(TF) provides a positive overall charge to the surface. (M) is associated with the dendritic polymer on its interior and/or surface. It is associated with (IF) moiety of the dendritic polymer. The polymer solution contains a mixture of solvents, surfactant, emulsifier, and/or detergent to aid the coating process, and the weight of (I) in the solution is 0.0001-50 wt.%.
Preferred Parameter: The core (C) is a spherical shape, and is reacted with 4 reagents having (EX) and/or (BR) that are spherical shapes so that the following number of reagents can react: R=one quarter square root of 6x2r-r=(one half square root 6-1)r=0.225r (1), then r=R/one half square root of 6-1=(2/square root of 6-2)R=4.45R (2), where maximum radius for the smaller ball that can fit in the center space can be calculated from equation (1), and as long as rless than or equal to 4.45R, there is enough space to put greater than or equal to 4 shell reagents around the core.
r=radius of shell reagent;
R=radius of core; and
the length of the sides of tetrahedron=2r.
The core (C) is a spherical shape, and is reacted with 4 reagents of a conical shape having (EX) and/or (BR), so that the following number of reagents can react: r'=h+R=(1/12) square root of 6a (1), then a=2 square root of 6(h+R) (2), thus r=(1/6) square root of 3a=(1/6) square root 3x2 square root of 6(h+R)=square root of 2(h+R) (3). If, rless than or equal tosquare root of 2(h+R), there will be enough space to put greater than or equal to 4 shell reagents around the core.
R=radius of core;
h=height of cone (shell reagents);
r=radius of cone (shell reagents) base, i.e. the in-radius of tetrahedron base;
r'=in-radius of tetrahedron i.e. R+h; and
a=length of side of tetrahedron.

ABEX DEFINITIONS - Preferred Definitions: - Nc=1-20, preferably 3 or 4; - m, q=0 or 1-250, where one of q or m must be greater than or

equal to 1, and when both q and m are greater than 1, (BR) and (EX) may occur alternately with the other moiety or sequentially with multiple groups of (BR) or (EX) occurring in succession; - p=1-250; - (C)=(i) simple core, e.g. poly(glycidyl ethers) (e.g. pentaerythritol tetraglycidyl ether (PETGE), tetraphenylolethane glycidyl ether (TPEGE), triphenylolmethane triglycidyl ether (TPMTGE), trimethylolpropane triglycidyl ether (TMPTGE), bis(4-glycidyloxyphenyl)methane (BGPM)), tetra(epoxypropyl)cyanurate (TEPC), tris(2,3-epoxypropyl)isocyanurate (TGIC), tris(2-(acryloyloxy)ethyl)isocyanurate, 4,4'-methylene bis(N,N'-diglycidyl aniline) (MBDGA), N,N'-diglycidyl-4-glycidoxyaniline (DGGA), pentaerythritol triglycycidyl ether (PETriGE), pentaerythritol triallyl ether (PETriAE), pentaerythritol tetraazide (PETAZ), polyamines (e.g. ethylenediamine (EDA), hexamethylenediamine (HMDA), hyperbranched (e.g. polylysine, poly(ethyleneimine), poly(propyleneimine), tris-2-(aminoethylamine)), linear poly(ethyleneimine), water, hydrogen sulfide, alkylene/arylene dithiols, bis(2-piperazinylethyl)disulfide (BPEDS), cystamine, 4,4'-dithiodibutyric acid, dimethyldithiobutyrate (DMDTB), DO3A, DOTA, macrocycles (e.g. crown ethers), multicarbon cores (ethylene, butane, hexane, dodecane), polyglycidylmethacrylate, poly(functional acrylates) (e.g. trimethylolpropane triacrylate (TMPTA), diallyl amine), diethylaminodiacetate, tris(hydroxymethyl)aminomethane, phosphine, porphines (e.g. porphyrins), oxiranes, thioranes (e.g. tetrathiorane (TES)), oxetanes, aziridines, azetidines, multiazido functionalities (e.g. tetra-azido adduct derived from PETGE), or oxazolines (e.g. poly(2-ethyl-2-oxazoline) (PEOX)); a scaffolding core, which is a capped material, e.g. trimethylolpropane triacrylate, PETGE, TMPTGE, TPEGE, or TPMTGE, each capped with aminoethylpiperazine, azides, propargyl functionalities, piperazine, di-imminodiacetic acids, and/or epoxide surface poly(etherhydroxylamines) (PEHAMS); and a super core, which is a dendrimer that serves as the core functionality or zero valent metal particles (e.g. Au), Au nanoparticles, Au nanorods, colloids, latex particles, metal oxides, nanocrystals, quantum dots, micelles, vesicles, liposomes, buckyballs, carbon nanotubes, carbon fibers, silica, or bulk metal surfaces, where other structures are attached to or grown from the core surface; (ii) at least one nucleophilic (Nu), one electrophilic (E), or one other (O) moiety; a polyvalent core bonded to greater than or equal to 2 ordered dendritic branches; or a core atom or molecule that may be any monovalent or monofunctional moiety or any polyvalent or polyfunctional moiety, preferably a polyfunctional moiety having 2-25000 valence bonds of functional sites available for bonding with dendritic branches, where it is Nu, and is e.g. ammonia, water, hydrogen sulfide, phosphine, poly(alkylenediamines) e.g. ethylenediamine, polyalkylene polyamines e.g. diethylenetriamine, triethylenetetraamine, tetraethylenepentaamine, pentaethylenehexamine, poly(propyleneimine), poly(ethyleneimine) and poly(amidoamines), primary amines e.g. methylamine, arylmethyl halides (e.g. benzylic halides), hyperbranched (e.g. polylysine), poly(propyleneimine), tris-2-(aminoethylamine), heterocyclic amines, star/comb-branched polyamines, piperazine and its derivatives (e.g. aminoalkyl piperazines), ethylene glycol, polyalkylene polyols, polyalkylene polymercaptans, thiophenols, phenols, or any of these cores as capped cores (e.g. BOC), where at least one Nc valence is uncapped; E, is converted to E with Bronsted/Lewis acids or alkylation/acylation agents, and is cyclic ethers (e.g. epoxides), oxiranes, cyclic sulfides (e.g. epichlorosulfide), aziridines, azetidines, siloxanes, oxetanes, oxazolines, oxazines, carbamates,

caprolactones, carboxyanhydrides, thiolactones, sultones, beta-lactams, alphabeta-ethylenically unsaturated carboxylic esters e.g. (2-18C alkyl)acrylate esters (e.g. methyl acrylate, ethyl acrylate), (2-18C alkyl)methacrylate esters, acrylonitrile, methyl itaconate, dimethyl fumarates, maleic anhydride, or amides e.g. acrylamide, or any of these cores as capped cores where at least one Nc valence is uncapped; or 0 moiety, and is polyfunctional initiator cores that are compounds capable of generating a polyvalent core or free-radical receptor groups (e.g. olefinics), or 1,3-dipolar cyclo-addition moieties (e.g. polyalkynes and polyazides); (iii) e.g. triacrylate or tetraacrylate; or (iv) pentaerythritol triglycidyl ether (PETriGE) or pentaerythritol tetraazide (PETAZ); - (FF)=any moiety that enables a dendron to be used as a core, enables the joining of greater than or equal to 2 dendrons together, or enables reaction with (C), (BR), or (EX) and (BR); H, thiols, amines, carboxylic acids, esters, ethers, cyclic ethers (e.g. crown ethers, cryptands), porphyrins, hydroxyl, maleimides, alkyls, alkenyls, alkynyls, alkyl halides, arylalkyl halides, phosphinos, phosphines, boranes, alcohols, aldehydes, acrylates, cyclic anhydrides, aziridines, pyridines, nitriles, itaconates, cyclic thiolactones, thioranes, azetidines, cyclic lactones, macrocyclics (e.g. DOTA, DO3A), chelating ligands (e.g. DTPA) isocyanates, isothiocyanates, protecting groups (e.g. BOC or ketone solvent protected), siloxanes or its derivatives and/or substituted derivatives, or groups for click chemistry (e.g. polyazido or polyalkyne functionality); mercapto, amino, carboxy and carboxy esters, oxazoline, isothiocyanates, isocyanates, hydroxyl, epoxy, orthoester, acrylates, methacrylates, styrenyl, or vinylbenzylic moieties; - (BR)=uncapped or partially capped or primary or secondary polyamine, diethylenetriamine (DETA), 2-imidazolidyl-1-aminoethane (IMAE), diethanolamine (DEA), dibenzylamine (DBA), triethylenetetraamine (TETA), tetraethylenepentaamine, poly(ethyleneimine), methylamine, bis(allyl)amine (BAA), hydroxyethylamine, octadecylamine, diethyliminodiacetate (DEIDA), poly(methylenediamines) e.g. hexamethylenediamine (HMDA), polyaminoalkylarenes, tris(aminoalkyl)amines e.g. tris(aminoethyl)amine (TREN), tris(hydroxymethyl)aminomethane (TRIS), poly(ethyleneimines), poly(amidoamines), heterocyclic amines e.g. imidazolines, piperidines (PIPZ), aminoalkyl piperazines, methyl isobutyl protected 1-(2-aminoethyl)piperazine (PEA), PETGE; other amities e.g. hydroxyethylaminoethylamine, (2-hydroxyethyl)ethylenediamine (HEDA), and other benzylic amines e.g. tris(1,3,5-aminomethyl)benzene; polyols e.g. pentaerythritol, ethylene glycol, polyalkylene polyols e.g. polyethylene glycol, polypropylene glycol, 1,2-dimercaptoethane, or polyalkylene polymercaptans; thiophenols or phenols; acetylenic polyepoxides, hydroxyalkyl azides, alkyl azides, tri- and tetra-aziridines, tri- and tetra-oxazolines, triazoles, thiol alkyls, thiol (FF) dendrons, allyl groups, acrylates, methacrylates, or olefinic functionality or capped moieties of any of the above; 3,3-iminodiacetonitrile (IDAN); imino bis(methylphosphonic acid); imino bis(methylphosphonic acid) (IMPA); N-(2-hydroxyethyl)ethylenediamine (AEEA); or 2-methyl-2-imidazoline (MIA); - (IF)=any active moiety formed from a ring-opening reaction resulting in interior reactive sites, preferably hydroxyl, thiol, amine, phosphine, alkylsilane, silane, boranes, carboxy, carboxy ester, chloro, bromo, alkene, alkyne, alkyl- or aryl-amide, alkylene ester, or amine; - (EX)=amino acids e.g. lysine, poly(amino acids) e.g. polylysine, oligoethyleneglycols, diethylenetetraamine and higher amine analogs, EA, morpholine, dicarboxylic acids, EPC, IMAE, aryl dimercaptans, dimercaptoalkanes, triazoles, diazides, diacetylenes, pyrrolidone, or pyrrolidone esters; PEA, PIPZ, polypiperazines, EPC, EDA, DEIDA, or hyperbranched

dendritic polymers e.g. polylysine; - (TF)=e.g. amino groups including primary and secondary amino groups, which may be capped but has uncapped amino group(s) present (e.g. methylamino, ethylamino, hydroxyethylamino), tertiary amino (e.g. dimethylamino, diethylamino, bis(hydroxyethyl)amino), quat. amino groups, trialkyl ammonium, bis(hydroxyethyl)amino, bis(2-haloethyl)amino, N-alkylated, N-arylated, N-acylated derivatives), hydroxy, mercapto, carboxy, alkenyl, allyl, aryl, methalkyl, vinyl, amido, halo, urea, oxiranyl, aziridinyl, oxazolinyl, azalactone, lactam, lactone, imidazolinyl, sulfonato, phosphonato, boronato, organosilanes, isocyanato, isothiocyanato, alpha-haloacyl groups, or hydroxy alkylazido; polyethyleneglycol, pyrrolidone, pyrrolidone esters, dyes, protected amino acids, antibodies and fragments, proteins, peptides, or cyclopeptides; piperazine and its derivatives, alkyl piperazine, aminoalkyl piperazine, 1,2,3-triazoles, IMAE, protected DETA, carboxyalkyl, pyrrolidone (and its esters), or succimidyl esters; tetramethylsilane (TMS); and - G=0, 1, 2, 3, or 4.

ADMINISTRATION - The dendritic polymer and drug are administered by an oral route, ampoule, intravenous injection, intramuscular injection, transdermal application, intranasal application, intraperitoneal administration, subcutaneous injection, or ocular application, as wipes, sprays, or gauze for use at a surgical incision, near scar formation sites, or site of a tumor growth or removal or near or within a tumor (all claimed).

EXAMPLE - Glycidol (237 mg) was dissolved into water (8 ml). The G=1 poly(etherhydroxylamine) (PEHAM) dendrimer (400 mg)was dissolved into water (12 ml), followed by addition of potassium carbonate (220 mg). The clear solution of dendrimer and base was added dropwise to the glycidol solution under mechanical stirring. After 72 hours, matrix-assisted laser desorption ionization time of flight (MALDI-TOF) showed consumption of the glycidol and reaction with dendrimer. The mixture was subjected to 3K ultrafiltration with permeate (8 L) collected. The retentate was collected and water removed by rotary evaporation. The residue was further dried under high vacuum overnight to yield the PEHAM dendrimer (760 mg, 100% yield).

FS CPI

MC CPI: A10-E01; B04-C03E; B04-F0100E; B05-A01B; B05-A03A3; B05-A03B; B11-C04A1; B11-C04D; B11-C07A; B12-K04; B14-G02; B14-N17; B14-R01; B14-S11; D05-H09; D05-H10; D08-B; D09-A01; D09-C01; F03-E01; F03-F33; G02-A04A; G02-A05; G02-A05C; G06-D06; G06-F03C; G06-G05; L03-J

L144 ANSWER 38 OF 50 WPIX COPYRIGHT 2010 THOMSON REUTERS on STN

AN 2006-798243 [200681] WPIX Full-text

DNC C2006-247825 [200681]

TI Use of an activated alpha-amino acid monomer for the preparation of hydrophobic polypeptides in the form of precipitates, by the polymerization of the activated alpha-amino acid monomers in aqueous solvent

DC A11; A23; A41; A96; B03; B04; B07; C03; C06

IN COLLET H; COMMEYRAS A; COTTET H; ROMESTAN B; ROMESTAND B; ROUMSETAND B; SOUAID E; TRAMBOUZE O; TRAMBOUZE O Y M; TRAMBOUZE O Y

PA (CNRS-C) CENT NAT RECH SCI; (UYMO-N) UNIV MONTPELLIER II

CYC 112

PI WO 2006114528 A1 20061102 (200681)* FR 84[15]
FR 2885130 A1 20061103 (200681) FR
EP 1874797 A1 20080109 (200805) FR
AU 2006239113 A1 20061102 (200810) EN
US 20080206183 A1 20080828 (200857) EN
CA 2606240 A1 20061102 (200864) FR
JP 2008539297 T 20081113 (200877) JA 52
EP 1874797 B1 20091021 (200969) EN

DE 602006009915 E 20091203 (200979) DE
ADT WO 2006114528 A1 WO 2006-FR952 20060427; FR 2885130 A1 FR 2005-4309 20050428; AU 2006239113 A1 AU 2006-239113 20060427; CA 2606240 A1 CA 2006-2606240 20060427; EP 1874797 A1 EP 2006-755456 20060427; EP 1874797 B1 EP 2006-755456 20060427; EP 1874797 A1 PCT Application WO 2006-FR952 20060427; US 20080206183 A1 PCT Application WO 2006-FR952 20060427; CA 2606240 A1 PCT Application WO 2006-FR952 20060427; JP 2008539297 T PCT Application WO 2006-FR952 20060427; EP 1874797 B1 PCT Application WO 2006-FR952 20060427; CA 2606240 A1 PCT Nat. Entry CA 2006-2606240 20071026; JP 2008539297 T JP 2008-508260 20060427; US 20080206183 A1 US 2008-912918 20080310; DE 602006009915 E DE 2006-602006009915 20060427; DE 602006009915 E EP 2006-755456 20060427; DE 602006009915 E PCT Application WO 2006-FR952 20060427
FDT EP 1874797 A1 Based on WO 2006114528 A; AU 2006239113 A1 Based on WO 2006114528 A; CA 2606240 A1 Based on WO 2006114528 A; JP 2008539297 T Based on WO 2006114528 A; EP 1874797 B1 Based on WO 2006114528 A; DE 602006009915 E Based on EP 1874797 A; DE 602006009915 E Based on WO 2006114528 A
PRAI FR 2005-4309 20050428
IPCI A01N0037-44 [I,C]; A01N0037-46 [I,A]; A01N0061-00 [I,A]; A01N0061-00 [I,A]; A01N0061-00 [I,C]; A01N0061-00 [I,C]; A01P0003-00 [I,A]; A01P0003-00 [I,C]; A61K0031-74 [I,C]; A61K0031-785 [I,A]; A61K0038-00 [I,A]; A61K0038-00 [I,C]; A61K0038-02 [I,A]; A61K0038-02 [I,C]; A61K0047-48 [I,A]; A61K0047-48 [I,A]; A61K0047-48 [I,C]; A61K0047-48 [I,C]; A61P0031-00 [I,C]; A61P0031-04 [I,A]; A61P0031-10 [I,A]; A61P0035-00 [I,A]; A61P0035-00 [I,C]; C07K0001-00 [I,A]; C07K0001-00 [I,A]; C07K0001-00 [I,A]; C07K0001-00 [I,C]; C07K0001-00 [I,C]; C07K0001-00 [I,C]; C07K0001-08 [I,A]; C07K0001-107 [I,A]; C07K0019-00 [I,A]; C07K0019-00 [I,C]; C07K0002-00 [I,A]; C07K0002-00 [I,A]; C07K0002-00 [I,C]; C07K0002-00 [I,C]; C08G0069-00 [I,A]; C08G0069-00 [I,A]; C08G0069-00 [I,A]; C08G0069-00 [I,C]; C08G0069-00 [I,C]; C08G0069-00 [I,C]; C08G0069-10 [I,A]; C08G0069-48 [I,A]
EPC A01N0061-00; C07K0014-003; C08G0069-10
NCL NCLM 424/078.170
NCLS 527/200.000; 530/333.000
FCL A01N0037-46; A01N0061-00 D; A01P0003-00; A61K0037-02; A61P0031-04; A61P0031-10; A61P0035-00; C08G0069-00; C08G0069-10; C08G0069-48
FTRM 4C084; 4C201; 4H011; 4J001; 4C084/AA02; 4H011/AA02; 4C084/AA06; 4C084/BA04; 4H011/BB06; 4H011/BB19; 4C084/CA59; 4J001/DA01; 4J001/DB01; 4J001/DB07; 4J001/DD13; 4H011/DH06; 4J001/EA37; 4J001/EE65.A; 4J001/EE65.C; 4J001/FA03; 4J001/FB01; 4J001/GE02; 4J001/JA20; 4J001/JB01; 4C084/NA14; 4C084/ZB26; 4C084/ZB35
AB WO 2006114528 A1 UPAB: 20091028

NOVELTY - Use of an activated alpha-amino acid monomer for the preparation of hydrophobic polypeptides in the form of precipitates, by the polymerization of the activated alpha-amino acid monomers in aqueous solvent, where the precipitate is redissolvable in the solvent.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are included for: the preparation of a grafted homo or heteropolylysine dendrimer from a precursor comprising a primary or secondary amine group, comprising adding L-lysine-N-carboxy anhydride (NCA) monomer, and optionally one or more other alpha-amino acid-NCA monomers of L-ornithine-NCA, L-glutamic acid-NCA or its gamma-amide, L-aspartic-NCA acid or its beta-amide, L-diamino-2,4-butyric acid-NCA or its beta-amide, L-tyrosine-NCA, L-serine-NCA, L-threonine-NCA, L-phenylalanine-NCA, L-valine-NCA, L-leucine-NCA, L-isoleucine-NCA, L-alanine-NCA or glycine-NCA to the precursor in an aqueous solvent; and a grafted polylysine dendrimer obtained by the process.

USE - (I) is useful for the preparation of aqueous polylysine solvent. The grafted polylysine dendrimers are useful for the preparation of antigen complexes, or hapten complexes for the production of antibodies directed against the antigen or the hapten. The dendrimer is useful as a antibacterial or antifungal agent, provided it is not used for the therapeutic treatment of the human or animal body. The dendrimers are useful for the preparation of a drug for the treatment of the bacterial infections (Gram negative and Gram positive bacteria of Pseudomonadaceae (preferably Pseudomonas), Legionellaceae (preferably Legionella), Enterobacteriaceae (preferably Escherichia,

Salmonella, Shigella and Yersinia), Vibrionaceae, Pasteurellaceae, Alcaligenaceae (preferably Bordetella), Brucellaceae (preferably Brucella), Francisellaceae (preferably Francisella), Neisseriaceae, Micrococcaceae (preferably Staphylococcus, Streptoccus, Listeria)) or fungal infections or cancers (all claimed).

ADVANTAGE - The dendrimer is furtive with respect to the immune systems, so it is used as carriers, haptens or antigens against which the immune systems react to form antibodies. The process is rapid and synthesizes peptides of controlled size and recovers them easily, and the resolubilisation is done by deprotection. The process involves the activation of monomers without any preliminary purification.

TECH ORGANIC CHEMISTRY - Preferred Components: The activated amino acids are N-carboxyanhydride alpha-amino acids, N,N'-carbonyldiimidazole alpha-amino acids, carbonyl sulfide alpha-amino acid, alpha-aminoacids carbonic anhydride or thio amino acid oxidizing agent. The N-carboxyanhydride alpha-amino acids is of formula (I), where R is a side chain of natural or modified alpha-amino acid. The L-lysine-NCA is protected in epsilon N position by formyl, trifluoro acetic acid (TFA), tert.butoxy carbonate, ethene-1,1-diol, 9-fluorenylmethoxycarbonyl or trityl. The primer is L-lysine, L-ornithine, homopolylysine, poly (ethylene glycol)-alpha-w-diamine, heteropolylysine, heteropeptide or a homopeptide. The pH of the solvent is 3-9. The external amino groups are in a optionally covalent bond with groups of bases, nucleic acids, proteins, or groups having carboxylic, sulfonic or phosphoric functional groups or ethylene polyoxide, or hydrocarbon chains or perfluorohydrocarbons, aldehydes or their precursor, or the sequestered reactive functional group e.g. carbamoyl or chloro ethylnitroso urea groups.

POLYMERS - Preferred Process: The polylysine dendrimer is obtained by adding L-lysine-NCA protected in N epsilon position with an primer in a solvent aqueous, to obtain protected polylysine dendrimer in the form of a precipitate and deprotecting the protected polylysine dendrimer to obtain polylysine dendrimer. The process comprises protecting L-lysine-NCA by TFA, in an aqueous solution having pH of 6-8, without addition of or with a precursor to obtain a precipitate of protected polylysine dendrimer, and deprotecting the obtained polylysine polymer to obtain a linear polylysine dendrimer having average molecular mass of 1400 (preferably 1450 Daltons), a polydispersity of 1.2 and an average degree of polymerization of 8 units of lysine. The process comprises grafting the polylysine dendrimer for n generation (n is 2 to 10), where the formed polylysine dendrimer in the first generation form the core of the polylysine dendrimer of following generations.

Preferred Components: The monomer is L-lysine-NCA. The polylysine dendrimer is optionally protected L-lysine. The precursor is a poly (ethylene glycol)-alpha,omega-diamine having molecular mass of 100-10000 (preferably 1000-10000) Daltons. The core of the grafted homopolylysine dendrimer is a linear polylysine comprising 8 L-lysine residues, where the degree of branching of the grafted homopolylysine dendrimer generation is 40-100%. The mass ratio of L--NCA protected in Nepsilon position by TFA to polylysine dendrimer of first, second, third, fourth or fifth generation is 2.6-3.9 (preferably 3), where the second generation dendrimer has an average molecular weight of 6000-14000 (preferably 8600) Daltons, polydispersity of 1.4 and free external amino groups of 40-60 (preferably 48). The dendrimer obtained at third generation is has an average molecular weight of 15000-30000 (preferably 22000) Daltons, polydispersity of 1.4, and free external amino groups of 100-150 (preferably 123). The fourth generation dendrimer has an average molecular weight of 50000-80000 (preferably 65300) Daltons, a polydispersity of 1.4, and free external amino group of 300-450 (preferably 365). The fifth generation dendrimer has an average molecular weight of 140000-200000 (preferably 172300) Daltons, a

polydispersity of 1.5, and free external amino group of 900-1100 (preferably 963). The primer fixed covalently at the grafted dendrimer, comprises a detectable marker product. The dendrimers are fixed on a support by covalently or non-covalently, preferably by electrostatic bond.
FS CPI
MC CPI: A05-F03; A10-D; A10-E17; A12-V01; A12-V03C1; A12-W12B; B04-C01; B04-C03C; B04-C03D; B04-C03E; B14-A01; B14-A04; B14-H01; C04-C01; C04-C03C; C04-C03D; C04-C03E; C14-A01; C14-A04; C14-A06; C14-H01

L144 ANSWER 39 OF 50 WPIX COPYRIGHT 2010 THOMSON REUTERS on STN
AN 2006-727154 [200675] WPIX Full-text
DNC C2006-220861 [200675]
TI New Janus dendrimer useful as e.g. specific targeting entities for diagnostic and therapeutic applications comprises two dissimilar dendrons providing heterobifunctional character joined at their core
DC A96; B04
IN HUANG B; FULGAM V R; SWANSON D R; TOMALIA D A; FULGAM V; SWANSON D; TOMALIA D
PA (DEND-N) DENDRITIC NANOTECHNOLOGIES INC; (HUAN-I) HUANG B; (FULG-I) FULGAM V R; (SWAN-I) SWANSON D R; (TOMA-I) TOMALIA D A
CYC 112
PI WO 2006105043 A2 20061005 (200675)* EN 66[10]
WO 2006105043 A3 20071004 (200765) EN
EP 1869106 A2 20071226 (200803) EN
US 20080221300 A1 20080911 (200861) EN
ADT WO 2006105043 A2 WO 2006-US11160 20060327; EP 1869106 A2 EP 2006-748759 20060327; US 20080221300 A1 Provisional US 2005-665698P 20050328; US 20080221300 A1 Provisional US 2005-728137P 20051019; EP 1869106 A2 PCT Application WO 2006-US11160 20060327; US 20080221300 A1 PCT Application WO 2006-US11160 20060327; US 20080221300 A1 US 2007-885244 20070828
FDT EP 1869106 A2 Based on WO 2006105043 A
PRAI US 2005-728137P 20051019
US 2005-665698P 20050328
US 2007-885244 20070828
IPCI A61K0048-00 [I,A]; A61K0048-00 [I,C]; C08G0059-00 [I,C]; C08G0059-68 [I,A]; C08G0061-00 [I,A]; C08G0061-00 [I,C]; C08G0063-00 [I,C]; C08G0063-44 [I,A]; C08G0065-00 [I,C]; C08G0065-04 [I,A]; C08G0073-00 [I,A]; C08G0073-00 [I,C]; C08G0075-00 [I,A]; C08G0075-00 [I,C]; C08G0081-00 [I,A]; C08G0081-00 [I,C]; C08G0083-00 [I,A]; C08G0083-00 [I,C]
NCL NCLM 528/373.000
AB WO 2006105043 A2 UPAB: 20061121
NOVELTY - A Janus dendrimer comprising at least two dissimilar dendrons joined at their core optionally with a connecting group is new. The dendrons provide a heterobifunctional character.
DETAILED DESCRIPTION - INDEPENDENT CLAIMS are included for the following:
(1) an intermediate for the Janus dendrimer comprising at least one nanoscale sterically induced stoichiometry (N-SIS) dendron having at least one reactive focal moiety (RFM) present either from its core or a connecting group that is capable of further reaction to form the Janus dendrimer or to react with another reactive moiety;
(2) a formulation where the dendrimer is formulated into tablets, ampoules, ointments, gels, suspensions, emulsions, injections, transdermal formulations, intranasal formulations, ocular applications or application in a gauze, wipe, spray or other means at site of surgical incision, near scar formation sites, or site of a tumor growth or removal, and as kits, having customary pharmaceutically-acceptable salts, adjuvants, binders, desiccants, diluents and excipients;
(3) making the Janus dendrimer where the dendrons are joined by Crick-Watson base pairing; and
(4) making the Janus dendrimer where the core is a cystamine core formed by reacting thiol ends of two dendrons cores.
ACTIVITY - Cytostatic; Vulnerary.
No biological data given.

MECHANISM OF ACTION - None given.

USE - The dendrimer is used in a combinatorial library of bifunctional structures; as combined target director and signaling dendrimers; or specific targeting entities for diagnostic and therapeutic applications (claimed) e.g. MRI agent, radionuclide for diseases such as cancer, photosensitive agent or radiosensitive agents.

ADVANTAGE - The Janus dendrimer is cost effective.

TECH POLYMERS - Preferred Polymer: The core is joined with a connecting group. At least two different dendritic polymers are present. The dendrons are poly(etherhydroxylamine) (PEHAM) dendron and poly(amidoamine) (PAMAM) dendron. The N-SIS derived dendron possesses either an organic azide or a terminal alkyne group at the focal point functionality (FF) suitable for 1,3-dipolar cyclo-addition reactions. The dendrons possess (FF) groups selected from epoxy, aziridine, episulfide, activated Michael's addition olefins, and oxazolines that are suitable for click chemistry ligations.

ABEX EXAMPLE - No relevant example given.

FS CPI

MC CPI: A05-F; A05-F01E3; A10-E01; A12-V01; B04-C03E; B12-K04; B12-M10E; B14-H01; B14-N17F

L144 ANSWER 40 OF 50 WPIX COPYRIGHT 2010 THOMSON REUTERS on STN

AN 2006-479851 [200649] WPIX Full-text

CR 2007-083083

TI New dendritic polymer for pharmaceutical or agricultural formulation, or useful e.g. as emulsifiers for oil/water emulsions, proton scavengers, or calibration standards for electron microscopy

DC A28; A96; A97; B07; C07

IN HUANG B; FULGAM V R; SWANSON D; SWANSON D R; TOMALIA D; TOMALIA D A; CHAUHAN A S; DEMATTEL C R; HEINZELMANN J R; REYNA L A; SVENSON S; ZHURAVEL M A

PA (DEND-N) DENDRITIC NANOTECHNOLOGIES INC

CYC 110

PI

WO 2006065266	A2	20060622	(200649)*	EN	143[11]
EP 1737899	A2	20070103	(200703)	EN	
AU 2005317193	A1	20060622	(200724)	EN	
KR 2007015432	A	20070202	(200755)	KO	
CN 1946772	A	20070411	(200757)	ZH	
IN 2006CN04277	A	20070629	(200768)	EN	
BR 2005010093	A	20071016	(200770)	PT	
US 20070244296	A1	20071018	(200770)	EN	
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JP 2007533838	T	20071122	(200779)	JA	109
MX 2007010402	A1	20080101	(200882)	ES	
KR 843362	B1	20080702	(200904)	KO	
TW 2008001075	A	20080101	(200907)	ZH	
JP 4510881	B2	20100728	(201050)	JA	111

ADT WO 2006065266 A2 WO 2005-US13864 20050420; US 20070244296 A1 Provisional US 2004-563659P 20040420 ; AU 2005317193 A1 AU 2005-317193 20050420; BR 2005010093 A BR 2005-10093 20050420; CN 1946772 A CN 2005-80012562 20050420; EP 1737899 A2 EP 2005-851172 20050420; EP 1737899 A2 PCT Application WO 2005-US13864 20050420; KR 2007015432 A PCT Application WO 2005-US13864 20050420; IN 2006CN04277 A PCT Application WO 2005-US13864 20050420; BR 2005010093 A PCT Application WO 2005-US13864 20050420; US 20070244296 A1 PCT Application WO 2005-US13864 20050420; JP 2007533838 T PCT Application WO 2005-US13864 20050420; KR 843362 B1 PCT Application WO 2005-US13864 20050420; MX 2007010402 A1 PCT Application WO 2005-US47635 20051221; TW 2008001075 A TW 2006-122332 20060621; US 20070244296 A1

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     US 2006-594776 20060929; KR 2007015432 A KR 2006-724191 20061117;
     KR 843362 B1 KR 2006-724191 20061117; IN 2006CN04277 A IN
     2006-CN4277 20061120; JP 2007533838 T JP 2007-509679
     20050420; MX 2007010402 A1 MX 2007-10402 20070824; JP 4510881
     B2 PCT Application WO 2005-US13864 20050420; JP 4510881
     B2 JP 2007-509679 20050420
FDT  KR 843362 B1 Previous Publ KR 2007015432 A; EP 1737899 A2 Based on
     WO 2006065266 A; AU 2005317193 A1 Based on WO 2006065266 A; KR
     2007015432 A Based on WO 2006065266 A; BR 2005010093 A Based on WO
     2006065266 A; JP 2007533838 T Based on WO 2006065266 A; KR 843362
     B1 Based on WO 2006065266 A; MX 2007010402 A1 Based on WO
     2006115547 A; JP 4510881 B2 Previous Publ JP 2007533838 T; JP
     4510881 B2 Based on WO 2006065266 A
PRAI US 2004-563659P      20040420
       WO 2005-US13864     20050420
     US 2006-594776      20060929
IC   ICM C08J003-00
IPCI A01N0025-10 [I,A]; A01N0025-10 [I,C]; A61K0031-74 [I,C];
     A61K0031-785 [I,A]; A61K0047-34 [I,A]; A61K0047-34 [I,C];
     A61K0047-48 [I,C]; A61K0047-48 [I,A]; A61K0047-48 [I,C];
     A61K0048-00 [I,A]; A61K0048-00 [I,C]; C08F0020-00 [I,C];
     C08F0020-00 [I,C]; C08F0020-00 [I,C]; C08F0020-02 [I,A];
     C08F0020-02 [I,A]; C08F0279-00 [I,C]; C08F0279-00 [I,A];
     C08F0279-00 [I,C]; C08F0279-04 [I,A]; C08F0279-04 [I,A];
     C08G0059-00 [I,C]; C08G0059-32 [I,A]; C08G0069-00 [I,C];
     C08G0069-44 [I,A]; C08G0073-00 [I,C]; C08G0073-00 [I,C];
     C08G0073-06 [I,A]; C08G0083-00 [I,C]; C08G0083-00 [I,A];
     C08G0083-00 [I,C]; C08G0085-00 [I,A]; C08G0085-00 [I,C];
     C08J0003-00 [I,A]; C08J0003-00 [I,C]; C08J0003-00 [I,A];
     C08J0003-00 [I,C]; C08J0009-00 [I,C]; C08J0009-00 [I,C];
     C08J0009-32 [I,A]; C08J0009-32 [I,A]; C08J0009-40 [I,A];
     C08J0009-40 [I,A]; C08K0009-00 [I,A]; C08K0009-00 [I,C];
     C08K0009-00 [I,A]; C08K0009-00 [I,C]; A01N0025-10 [I,C];
     A61K0047-34 [I,C]; C08G0059-00 [I,C]; C08G0085-00 [I,C]
IPCR C08F0279-00 [I,A]; C08F0279-00 [I,C]
EPC  C08G0083-00D
NCL  NCLM  528/423.000
     NCLS  528/425.000
FCL  A01N0025-10; A61K0047-34; A61K0047-48; C08G0059-32; C08G0073-06;
     C08G0085-00
     Main:       C08G0085-00
     Secondary: A01N0025-10; A61K0047-34; A61K0047-48; C08G0059-32;
                 C08G0073-06
FTRM 4C076; 4H011; 4J031; 4J036; 4J043; 4H011/AA01; 4H011/AA03;
     4C076/AA95; 4H011/AB01; 4J036/AB02; 4J036/AB03; 4J036/AB08;
     4J036/AB09; 4H011/AC06; 4H011/BA01; 4H011/BC19; 4J031/BD03;
     4J031/BD07; 4J031/CA06; 4J031/CA11; 4J031/CA21; 4J031/CA26;
     4J036/CB05; 4J036/CB22; 4C076/CC42; 4J031/CD09; 4J031/CD13;
     4J031/CD14; 4J031/CD15; 4H011/DH08; 4C076/EE17.A; 4C076/EE59;
     4C076/EE60; 4C076/FF31; 4C076/FF68; 4J043/PA10; 4J043/PA13;
     4J043/PA18; 4J043/PA20; 4J043/QB16; 4J043/QB47; 4J043/QC03;
     4J043/SA06; 4J043/SB01; 4J043/TA03; 4J043/TA33; 4J043/TA35;
     4J043/TA38; 4J043/TA39; 4J043/TB01; 4J043/YB08; 4J043/YB17;
     4J043/ZA01; 4J043/ZA27
AB   WO 2006065266 A2   UPAB: 20090205
      NOVELTY - A dendritic polymer is new.
            DETAILED DESCRIPTION - A dendritic polymer of formula (I) or (III), is new.
            C=core;
            FP=focal point functionality component of the core;
            BR=branch cell, which if p is greater than 1 (BR) may be the same or a different
     moiety;
            p=total number of branch cells (BR) in the dendrimer and is 1-2000 derived by
     equation (1);
            IF=interior functionality, which if q is greater than 1 (IF) may be the same or
     different moiety;
            q=0 or 1-2000;
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EX=extender, which if m is greater than 1 (EX) may be the same or different moiety;

m=0 or 1-1000;

TF=terminal functionality, which if z is greater than 1 (TF) may be the same or different moiety;

z= number of surface groups from 1 to the theoretical number possible for the BR for a given generation (G) and is derived by z=NcNb-G;

G= number of concentric branch cells surrounding the core;

Nb=branch cell multiplicity;

Nc=core multiplicity and is 1-1000.

(Equation (1), page 127) In formula (III),

z=NcNb-Gi;

G=generation (i.e. 1,2,3 ...i);

R'=(BR);

Nb, Nc, TF, p=have meanings as defined.

USE - For pharmaceutical or agricultural formulation (claimed), or useful as emulsifiers for oil/water emulsions, wet strength agents in the manufacture of paper, proton scavengers, calibration standards for electron microscopy, making size selective membranes and agents for modifying viscosity in aqueous formulations, e.g. paint.

ADVANTAGE - The dendritic polymer has enhanced amplification and interior functionality. The dendrimer composition has greater stability, e.g. thermal stability and less or no reverse Michaels reaction, and reaches encapsulation surface densities at lower generations. The dendrimer structure can be made with a faster reaction time, easier separation with fewer by-products, and lower cost of manufacture. The dendrimer is easier to scale.

TECH POLYMERS - Preparation (disclosed): Bridged dendrimers can be formed by reaction of electrophilic surface dendrimer with a nucleophilic surfaced dendrimer such as an amine-terminated surface with an ester-terminated surface.

Preferred Components: A carried material is associated with the dendritic polymer on either its interior or surface. The carried material is a pharmaceutically active agent or pro-drug. It is an agriculturally active agent.

ABEX DEFINITIONS - Preferred Definitions: (i)C=simple core; - (ii)C=scaffording (sic) core; - (iii)C=super core; - (iv)C=nucleophilic or electrophilic moiety; polyvalent core bonded to at least two ordered dendritic branches; or a core atom or molecule that may be any monovalent or monofunctional moiety or any polyvalent or polyfunctional moiety, preferably a polyfunctional moiety having 2-2300 valence bonds of functional sites available for bonding with dendritic branches; - (v)C=triacrylate, tetraacrylates, triepoxide, tetraepoxide, diglycidyl aniline, aminoethanol, ethylenediamine, triphenylmethane, triglycidylether, bis(glycidoxyphenyl)methane, methylene bis(diglycidylaniline), tetraepisulfide, or trisglycidylisocyanurate(epoxypropyl)cyanurate; - (vi)C=cystamine, isocyanurate, heterocycles, multicarbon cores (ethylene, butane, hexane, dodecane), phosphine, or moieties with single or multiple functional epoxides; - (vii)FF=any moiety that enables a dendron to be used as a ore, enables the joining of two or more dendrons together, or enables reaction with BR; - (viii) - FF=thiols, amines, carboxylic acids, esters, ethers, cyclic ethers (e.g. crown ethers, cryptands), porphyrins, hydroxyl, maleimides, aldehydes, alkyl halides, arylalkyl halides, phosphines, boranes, alcohols, acrylates, alkenes, cyclic anhydrides, aziridines, pyridines, nitriles, itaconates, cyclic thiolactones, thioranes, azetidines, cyclic lactones, macrocyclics, chelating ligands, isocyanates, isothiocyanates, alkynes, imidazoles, azides, mercaptoamines, silanes, oxazolines, oxirane, oxetane, oxazines, imines, tosylates, protecting groups, and siloxane or derivatives, and/or substituted derivatives, where the number of carbons present in each of the moieties, when present, is at least 2-18; - halo=chloro, bromo, fluoro or iodo; - hetero=S, N, O, Si, B, or P; - (ix) - FF=mercapto, amino, carboxy, oxazoline,

isothiocyanates, hydroxyl, epoxy orthoester, or acrylates; - (x) EXAMPLE - To a flask was added trimethyolpropane triglycidyl ether (2.3 g) and methanol (12 g). To this stirred mixture cooled to 4degreesC was added poly(aminoalcoholether) dendrimer (250 mg) in methanol (3 g) over 5 minutes. The mixture was stirred under nitrogen in a sealed vessel for 24 hours at 25degreesC. This mixture was added over 10 minutes to a mixture of piperazine (10 g) in methanol (30 g). The mixture was stirred for 18 hours at 25degreesC. The volatiles of the mixture were removed to give a white solid. Piperazine was removed using bulb to bulb distillation at high vacuum and 140degreesC for 1 hour to give 6 g of clear colorless viscous material. The material was dissolved in methanol (100 g) and dialyzed. Further dialysis for another 24 hours gave 360 mg (59% yield) of product that showed the absence of any lower molecular weight impurities.

FS CPI

MC CPI: A12-V01; A12-W04; A12-W12C; B04-C03E; B12-M05; B12-M09; C04-C03E; C12-M05; C12-M09

L144 ANSWER 41 OF 50 WPIX COPYRIGHT 2010 THOMSON REUTERS on STN

AN 2006-253438 [200626] WPIX Full-text

DNC C2006-082535 [200626]

DNN N2006-217254 [200626]

TI Sequencing target nucleic acid, by generating overlapping fragments of target nucleic acid, contacting fragments with array of capture oligonucleotides, measuring mass of hybridized fragments, and constructing nucleotide sequence

DC A89; B04; D16; S03

IN BOECKER S; VAN DEN BOOM D J; VAN DEN BOOM D

PA (BOEC-I) BOECKER S; (SEQU-N) SEQUENOM INC; (VBOO-I) VAN DEN BOOM D J

CYC 110

PI WO 2006031745 A2 20060323 (200626)* EN 122[3]
US 20060073501 A1 20060406 (200626) EN
EP 1802772 A2 20070704 (200744) EN
AU 2005284980 A1 20060323 (200759) EN
IN 2007DN02176 A 20070803 (200780) EN
CN 101072882 A 20071114 (200820) ZH
JP 2008512129 T 20080424 (200830) JA 93

ADT WO 2006031745 A2 WO 2005-US32441 20050908; US 20060073501 A1 Provisional US 2004-608712P 20040910; AU 2005284980 A1 AU 2005-284980 20050908; CN 101072882 A CN 2005-80036019 20050908; EP 1802772 A2 EP 2005-804387 20050908; US 20060073501 A1 US 2005-222991 20050908; EP 1802772 A2 WO 2005-US32441 20050908; IN 2007DN02176 A WO 2005-US32441 20050908; CN 101072882 A WO 2005-US32441 20050908; IN 2007DN02176 A IN 2007-DN2176 20070321; JP 2008512129 T WO 2005-US32441 20050908; JP 2008512129 T JP 2007-531428 20050908

FDT EP 1802772 A2 Based on WO 2006031745 A; AU 2005284980 A1 Based on WO 2006031745 A; CN 101072882 A Based on WO 2006031745 A; JP 2008512129 T Based on WO 2006031745 A

PRAI US 2004-608712P 20040910
US 2005-222991 20050908

IC ICM C12Q001-68

IPCI C07H0021-00 [I,C]; C07H0021-04 [I,A]; C12N0015-09 [I,A]; C12N0015-09 [I,C]; C12P0019-00 [I,C]; C12P0019-24 [I,A]; C12P0019-34 [I,A]; C12Q0001-68 [I,A]; C12Q0001-68 [I,C]; C12Q0001-68 [I,C]; G01N0033-53 [I,A]; G01N0033-53 [I,C]; G01N0037-00 [I,A]; G01N0037-00 [I,C]

EPC C12Q0001-68E+565/501+563/167

NCL NCLM 435/006.000

FCL C12N0015-00 A; C12Q0001-68 A; C12Q0001-68 Z (ZNA); G01N0033-53 M; G01N0037-00 102
Main: C12Q0001-68 Z (ZNA)
Secondary: C12N0015-00 A; C12Q0001-68 A; G01N0033-53 M; G01N0037-00 102

FTRM 2G045; 2G058; 4B024; 4B063; 4B024/AA11; 4B024/CA01; 4B024/CA11; 4B024/HA08; 4B024/HA14; 4B024/HA19; 4B063/QA13; 4B063/QA18; 4B063/QQ42; 4B063/QQ52; 4B063/QR14; 4B063/QR32; 4B063/QR84; 4B063/QS34; 4B063/QS36; 4B063/QX01; 4B063/QX04

AB WO 2006031745 A2 UPAB: 20060421

NOVELTY - Sequencing a target nucleic acid, involves generating overlapping fragments of target nucleic acid, contacting the fragments with an array of capture oligonucleotides under conditions that do not eliminate mismatched hybridization of the fragments to the capture oligonucleotides, measuring the mass of hybridized fragments by mass spectrometry, and constructing the nucleotide sequence of the target nucleic acid from the mass measurements.

DETAILED DESCRIPTION - Sequencing (M1) a target nucleic acid, involves generating overlapping fragments of a target nucleic acid, contacting the fragments with an array of capture oligonucleotides under conditions that do not eliminate mismatched hybridization of the fragments to the capture oligonucleotides, where one or more of the capture oligonucleotides are partially degenerate, measuring the mass of hybridized fragments at each array locus by mass spectrometry, and constructing the nucleotide sequence of the target nucleic acid from the mass measurements.

INDEPENDENT CLAIMS are also included for:

(1) controlling (M2) the complexity of a mass spectrum of target nucleic acid fragments, involves modulating the number of different nucleotide sequences in a first region of target nucleic acid fragments that hybridize to the capture oligonucleotide probe, where two or more target nucleic acid fragments containing different nucleotide sequences in the respective first regions hybridize to the capture oligonucleotide probe, and measuring the mass of the target nucleic acid fragments hybridized to the capture oligonucleotide probe by mass spectrometry, where the complexity of the mass spectrum is controlled;

(2) identifying (M3) a portion of a target nucleic acid, involves collecting a mass spectrum with controlled complexity, by (M2), and comparing the one or more target nucleic acid fragment masses with one or more masses of one or more reference nucleic acids, where a correlation between one or more target nucleic acid fragment masses and one or more reference masses identifies a portion of the target nucleic acid as corresponding to the reference nucleic acid or corresponding to a portion of the reference nucleic acid; and

(3) a combination (I) for identifying a portion of a target nucleic acid, comprising, an array of two or more capture oligonucleotides on a solid support, where at least one capture oligonucleotide is partially degenerate, and a mass spectrometer operably coupled to the array.

USE - (M1) is useful for sequencing a target nucleic acid, where the target nucleic acid is single-stranded e.g. single-stranded RNA or double-stranded (claimed). The sequence information provided by (M1) is useful for genotyping and haplotyping, multiplexed genotyping and haplotyping, nucleic acid mixture analysis, long-range resequencing, long-range detection of sequence variations and mutations, long-range methylation pattern analysis, organism identification, pathogen identification and typing, molecular breeding directed evolution, detecting the presence of viral or bacterial nucleic acid sequences indicative of infection, antibiotic profiling, identifying disease markers, detecting allelic variation, determining allelic frequency, epigenetics, etc.

ADVANTAGE - (M1) enables to obtain de novo nucleic acid sequence information that permits mismatch hybridization. (M1) provides a significantly increased quantity and accuracy of target nucleic acid sequence read length and higher (long-range) sequence read length. (M1) in combination with solid-phase hybridization with mass spectrometry detection has improved accuracy and clarity of identification of fragment signals produced by non-specific fragmentation or partial specific fragmentation, and increase in speed of analysis of the signals by using algorithms.

TECH BIOTECHNOLOGY - Preferred Method: In (M1), the constructing step comprises tentatively constructing a nucleotide sequence containing a hypothetical nucleotide at a nucleotide locus, predicting the fragmentation of the tentative nucleotide sequence, predicting which predicted fragments hybridize to a capture oligonucleotide, and predicting masses of hybridized predicted fragments, comparing the predicted masses of fragments with experimentally observed masses, and if the predicted masses match the observed masses, identifying the nucleotide locus in the target nucleic acid molecule as containing the hypothetical nucleotide. The step of tentatively constructing further includes tentatively constructing nucleotide sequences containing each of

the four typical nucleotides at a nucleotide locus, and the predicting and comparing steps are performed for all tentative nucleotide sequences, and tentative nucleotide sequence for which the predicted masses most closely match the observed mass is identified as the nucleotide sequence in the target nucleic acid molecule. The tentatively constructing, predicting, comparing and identifying steps are iterated, where each iteration includes tentatively constructing an increasingly longer nucleotide sequence containing a hypothetical nucleotide at a nucleotide locus. The constructing step further comprises establishing limits for fragment products of nucleic acid fragmentation, establishing limits for nucleic acid fragments that can hybridize to a particular capture oligonucleotide, predicting possible masses that can be observed in a mass spectrum of nucleotide fragments hybridized to the capture oligonucleotide, comparing observed masses to the predicted masses that can be observed to identify possible sequences that could be present and/or to identify sequences that are not present, and repeating the comparing, establishing, predicting and comparing steps for one or more additional capture oligonucleotides to thus decrease the number of possible sequences that could be present, where at least a portion of the nucleotide sequence of the target nucleic acid molecule is identified. The overlapping fragments are generated randomly or non-specifically. The fragments are generated using a fragmentation method chosen from enzymatic fragmentation, physical fragmentation, chemical fragmentation, and its combinations. The enzymatic fragmentation involves using one or more enzymes chosen from non-specific RNase, non-specific DNase, at least two double-base cutters, preferentially-cleaving endonuclease, restriction endonuclease, single-base cutter, double-base cutters, and its combinations. The physical fragmentation method is chosen from hydrodynamic forces, agitation, sonication and nebulization. The chemical fragmentation method is chosen from acid hydrolysis, base hydrolysis, alkylation and irradiation. The fragments statistically range in a size of 5-50 bases, 10-40 bases, 11-35 bases or 12-30 bases, 20-50 bases, 30-60 bases, 40-70 bases, or 50-80 bases. The hybridizing step is conducted under conditions that do not eliminate mismatched hybridization, preferably under low stringency, where fewer than all theoretical combinations of capture oligonucleotide sequences are present on the array and one or more of or all of the capture oligonucleotides is/are partially degenerate. The partially degenerate oligonucleotides comprise a fraction of degenerate positions chosen from at least 10%, 20%, 30%, 40%, and 50%. The partially degenerate oligonucleotides comprise a number of degenerate positions chosen from 1-10, where each degenerate position comprises a degenerate base chosen from universal base and a semi-universal base. The universal base is chosen from inosine, xanthosine, 3-nitropyrrole, 4-nitroindole, 5-nitroindole, 6-nitroindole, nitroimidazole, 4-nitropyrazole, 5-aminoindole, 4-nitrobenzimidazole, 4-aminobenzimidazole, phenyl C-ribonucleoside, benzimidazole, 5-fluoroindole, indole; acyclic sugar analogs, derivatives of hypoxanthine, imidazole 4,5-dicarboxamide, 3-nitroimidazole, 5-nitroindazole; aromatic analogs, benzene, naphthalene, phenanthrene, pyrene, pyrrole, difluorotoluene; isocarbostyril nucleoside derivatives MICS, ICS; and hydrogen-bonding analogs, N8-pyrrolopyridine. The semi-universal base is chosen from a base that hybridizes preferentially to purines A and G, a base that hybridizes to preferentially to pyrimidines C and T, a base that hybridizes to preferentially to pyrimidines C and U, 6H, 8H-3,4-dihydropyrimido(4,5-c)(1,2)oxazin-7-one, and N6-methoxy-2,6-diaminopurine. The majority of the degenerate bases are positioned on the 3' or 5' end of the capture oligonucleotide. The array contains a number of different capture oligonucleotides chosen from no more than 5000, 4096, 4000, 3000, 2500, 2100, 2000, 1536, 1500, 1400, 1300, 1200, 1100, 1000, 900, 800, 700, 600, 500,

400, 384, 300, 200, 100, 96, and 64. The array of capture oligonucleotides contains 4096 capture oligonucleotides and each of the capture oligonucleotides consists essentially of 12 bases. The array of capture oligonucleotides are immobilized on a solid-support chosen from hybridization chip, pin tool, bead, polystyrene, polycarbonate, polypropylene, nylon, glass, dextran, chitin, sand, pumice, agarose, polysaccharides, dendrimers , buckyballs, polyacrylamide, silicon, metal, rubber, microtiter dish, microtiter well, glass slide, silicon chip, nitrocellulose sheet, and nylon mesh. (M1) further involves treating the array of captured fragments with an enzyme to reduce the overall length of the hybridized fragments. The enzyme is chosen from a single-strand specific RNase, single-strand specific DNase, base-specific RNase, and base-specific DNase. (M2) further involves controlling the length of the target nucleic acid fragments prior to measuring the mass of the target nucleic acid fragments. The capture oligonucleotide probe contains one or more degenerate bases. The one or more of the target nucleic acid fragments further contain a second region that does not hybridize to the capture oligonucleotide probe, where of the one or more target nucleic acid fragments that contain second regions, at least two contain different nucleotide sequences in their respective second regions. The target nucleic acid fragments are hybridized to the capture oligonucleotide probe under hybridization conditions chosen from medium stringency hybridization conditions and low stringency hybridization conditions. The first regions of one or more of the target nucleic acid fragments contain an end of the target nucleic acid fragments chosen from the 3' end and the 5' end. The second regions of the one or more target nucleic acid fragments contains one or more known nucleotides at nucleotide positions at an end of the target nucleic acid fragments chosen from the 3' end and the 5' end. The step of controlling the length of target nucleic acid fragments further includes base-specific cleavage. The target nucleic acid fragments are hybridized to an array of capture oligonucleotide probes, where the array contains several positions, and the nucleotide sequence of the capture oligonucleotide probes at each array position differs from the nucleotide sequence of capture oligonucleotide probes at all other array positions. In (M3), the one or more reference masses of at least one reference nucleic acid are calculated and experimentally measured. The target nucleic acid fragments are formed using a method chosen from sequence-specific fragmentation and non-specific fragmentation. The portion of the target nucleic acid identified contains a single nucleotide polymorphism (SNP).
Preferred Combination: (I) further comprises a computer program for constructing a nucleotide sequence of the target nucleic acid from a set of mass signals acquired from nucleic acid molecules that hybridize to the capture oligonucleotides and a set of one or more reference mass peaks.

FS CPI; EPI

MC CPI: A12-L04B; B04-B03C; B04-E01; B04-E05; B04-E09; B04-L01; B11-C08E; B11-C08F2; B11-C08G2; B11-C11; B12-K04; D05-A01B; D05-H09; D05-H10; D05-H18A
EPI: S03-E10A; S03-E14H3

L144 ANSWER 42 OF 50 WPIX COPYRIGHT 2010 THOMSON REUTERS on STN
AN 2005-273229 [200528] WPIX Full-text
DNC C2005-085492 [200528]
DNN N2005-224485 [200528]
TI Stabilizing nanoparticles for use as nanosensers, comprises contacting dendrons containing single focal point functional groups, with a colloidal solution of nanoparticles, and reacting them
DC A85; A89; B04; D16; E19; P42; P32; U11; U12
IN HUANG B; TOMALIA D A; TOMALIA D
PA (DEND-N) DENDRITIC NANOTECHNOLOGIES INC

CYC 107
PI WO 2005029539 A2 20050331 (200528)* EN 37[17]
<--
EP 1648622 A2 20060426 (200628) EN
US 20060177376 A1 20060810 (200654) EN
ADT WO 2005029539 A2 WO 2004-US23483 20040721; EP 1648622 A2 EP 2004-786090 20040721; EP 1648622 A2 WO 2004-US23483 20040721; US 20060177376 A1 Provisional US 2003-488909P 20030721; US 20060177376 A1 WO 2004-US23483 20040721; US 20060177376 A1 US 2006-565478 20060120
FDT EP 1648622 A2 Based on WO 2005029539 A
PRAI US 2003-488909P 20030721
US 2006-565478 20060120
IPCI A61F0002-00 [I,A]; A61F0002-00 [I,C]; B05D0007-00 [I,A]; B05D0007-24 [I,A]
IPCR B05D0007-00 [I,A]; B05D0007-00 [I,C]; B05D0007-24 [I,A]; B05D0007-24 [I,C]; H01L [I,S]
EPC A61K0009-51; C09K0011-02B; C09K0011-56B2; C09K0011-88B2
ICO Y01N0002:00; Y01N0004:00; Y01N0006:00
NCL NCLM 424/009.300
AB WO 2005029539 A2 UPAB: 20051222
NOVELTY - Stabilizing nanoparticles selected from semiconductor nanoparticles, metal nanoparticles and metal salt nanoparticles comprises contacting dendrons containing single focal point functional groups, with colloidal solutions containing the nanoparticles, and allowing the single focal point functional groups to react with the surface of the nanoparticles

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is included for a composition of matter comprising the nanoparticles having an outside surface attached to the dendrons and the attachment comprises a linking group selected from sulfur as thiol, thiol in combination with ethylene oxide unit, and phosphorus in the form of phosphine or phosphine oxide in combination with ethylene oxide.

USE - For stabilizing nanoparticles e.g. semiconductor nanoparticles, metal nanoparticles and metal salt nanoparticles useful as an magnetic resonance imagining (MRI) agent, projectile for gene gun, genetic materials or biologically active materials for use as vaccines, biomedical tags, components in light emitting diode devices, diagnostics, nanosensors, nano-arrays for DNA and RNA, protein applications, chelators, photon absorption, energy absorbing, energy emitting, signal generator for diagnostics or radioactive materials (claimed).

ADVANTAGE - The method provides stabilized chemically functionalized semiconductor, metal and metal salt nanoparticles having nano/micron scale dimensions in the range of 1 - 10000 nanometers. The dendrons having certain characteristics can provide the sheathing require to protect the nano-surfaces and provide materials having a variety of properties.

TECH ORGANIC CHEMISTRY - Preferred Compounds: The single focal point functional group is sulfhydryl group, phosphine group of formula P(R)2R1 or phosphine oxide group or formula P(R)2(O)R1. The outside surface of the dendrons contains functional groups selected from hydrophilic group, hydrophobic group, reactive group and passive group. The reactive functional group is hydroxy, amino, carboxylic sulfonic, sulfonato, mercapto, amido, phosphino, -NH-COPh, -COONa, alkyl, aryl, heterocyclic, alkynyl or alkenyl. R = 1-4C alkyl or aryl; R1 = functionally reactive connector group (preferably 1 - 10 ethylene oxide units).
Preferred Composition: The phosphine in combination with ethylene oxide has a formula (R)2-P-R1-(CH2CH2O)x-(dendron). The phosphine oxide in combination with ethylene oxide has a formula (R)2-P(O)-R1-(CH2CH2O)x-(dendron). The thio in combination with ethylene oxide has a formula HSR1-(CH2CH2O)x-(dendron). x = 1 - 10.
Preferred Method: The nanoparticles are passivated prior to contacting them with the single focal point functional groups.
Preparation of the dendron containing sulfhydryl group involves:

(i) providing a dendrimer having a disulfide core;
(ii) reducing the disulfide of the core to form sulfhydryl functional dendrons; and
(iii) contacting the sulfhydryl functional dendrons with the colloidal solution of the nanoparticles to obtain dendronized semiconductor, metal or metal salt nanoparticles.
METALLURGY - Preferred Core: The nanoparticle core is iron, gold, platinum, palladium, cobalt, nickel, zinc, cadmium (Cd), iron oxide, cadmium-selenium (CdSe), cadmium sulfide (CdS), CdSe/CdS, CdSe/zinc sulfide, Cd-tellurium (CdTe), CdTe/CdS or CdTe/ZnS.
FS CPI; GMPI; EPI
MC CPI: A10-E22; B04-C03C; B04-C03E; B05-A03A2; B05-A03A4; B05-A03B; B05-B01D; B05-B01F; B05-B01G; B05-B02C; B10-E01; B10-E03; B11-C08A; B11-C08B; B11-C12; B12-K04; B12-K07; B12-M11E; B14-S11; D05-H07; D05-H09; D05-H10; E05-G02; E05-G03B; E05-G03C; E10-E03M; E31-G; E35-C; E35-D; E35-U02
EPI: U11-C18C; U12-B03F2

L144 ANSWER 43 OF 50 WPIX COPYRIGHT 2010 THOMSON REUTERS on STN
AN 2004-487419 [200446] WPIX Full-text
DNC C2004-181550 [200446]
TI Conjugate of a dendrimer and a protein solubilizing substance useful in the treatment of protein aggregate related diseases e.g. prion-related disease, Alzheimer's disease, Creutzfeldt-Jakob disease
DC A26; A96; B04
IN BOAS U; HEEGAARD P
PA (DAFO-N) DANMARKS FODEVARE OG VETERINAERFORSKNING; (DAFO-N) DANMARKS FOEDEVAREFORSKNING
CYC 106
PI WO 2004047869 A1 20040610 (200446)* EN 43[2]
<--
AU 2003283205 A1 20040618 (200471) EN
<--
EP 1567195 A1 20050831 (200557) EN
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US 20060127350 A1 20060615 (200641) EN
ADT WO 2004047869 A1 WO 2003-DK812 20031126; AU 2003283205 A1 AU 2003-283205 20031126; EP 1567195 A1 EP 2003-775106 20031126; EP 1567195 A1 WO 2003-DK812 20031126; US 20060127350 A1 WO 2003-DK812 20031126; US 20060127350 A1 US 2005-536629 20051216
FDT AU 2003283205 A1 Based on WO 2004047869 A; EP 1567195 A1 Based on WO 2004047869 A
PRAI DK 2002-1828 20021126
IPCI A61K0047-48 [I,A]; A61K0047-48 [I,C]; C08L0089-00 [I,A]; C08L0089-00 [I,C]
IPCR A61K0047-48 [I,A]; A61K0047-48 [I,C]
EPC A61K0047-48W18
ICO Y01N0002:00
NCL NCLM 424/078.170
NCLS 525/054.100
AB WO 2004047869 A1 UPAB: 20060121
NOVELTY - A conjugate (c) comprises a dendrimer (d) and a protein solubilizing substance (a). (a) Has a structure other than that found in (d).
DETAILED DESCRIPTION - INDEPENDENT CLAIMS are included for the following:
(1) identifying and/or classifying protein aggregates (b) in a mammal involving treating (b) with the (c) and analyzing the product(s); and
(2) preparation of (c).
ACTIVITY - Cerebroprotective; Neuroprotective; Nootropic; Antiparkinsonian; Antidiabetic; Cytostatic; Cardiovascular Gen.; Antiinflammatory; Antiarteriosclerotic; Anticonvulsant; Sedative; Nephrotropic.
MECHANISM OF ACTION - None given.

USE - In prevention, diagnosis or treatment of protein aggregate related diseases e.g. prion-related disease (preferably amyloid-related disease), Alzheimer's disease, Creutzfeldt-Jakob disease, variant Creutzfeldt-Jakobs disease, fatal familial insomnia, Gerstmann-Straussler-Sheinker syndrome, Prion protein-cerebral amyloid angiopathy, scrapie, bovine spongiform encephalopathy, chronic wasting disease, transmissible mink encephalopathy, Pick's disease, Parkinson's disease, amyotrophic lateral sclerosis, frontotemporal dementia, diabetes type II, multiple myeloma-plasma cell dyscrasias, familial amyloidotic polyneuropathy, medullary carcinoma of thyroid, chronic renal failure, congestive heart failure, senile cardiac and systemic amyloidosis, chronic inflammation, atherosclerosis, familial amyloidosis and Huntington's disease. Useful for classifying the protein aggregates into specific strain according to their susceptibility, in disinfection of material which has been contaminated with protein aggregates and for removing the protein aggregates from food that originates from an animal. Also useful in the preparation of a medicament for the treatment of prophylaxis and/or diagnosis of protein related diseases (all claimed).

ADVANTAGE - The dendrimer conjugate shows synergistic effects, i.e. the rate of increase of solubility of a protein aggregate shown by the conjugate is more than that shown by the corresponding mixture of the dendrimer and the protein solubilization system. It increases the solubility of the protein aggregate by a factor of more than 1 (preferably at least 2). (c) Has an EC50 value of 10 - 500 (preferably 50) microg/ml. Non-ionizable protein solubilizing moieties can also be used in the dendrimer conjugate leading to more biological uses and less problems with toxicity than seen with the cationic dendrimers in the prior art.

TECH ORGANIC CHEMISTRY - Preparation (claimed): (I) is prepared by either
(1) reacting (d) with a sulfonamide reagent e.g. chlorosulfonyl-isocyanate, halo-sulfamide, chlorosulfonyl-tert-butylsulfamate or other sulfonylamide reagents to form (c) containing surface sulfamide groups;
(2) reacting (d) with di-boc-S-methylisothiourea, di-boc-thiourea or condensing agents such as carbodiimides, phosphonium salts or other condensing reagents to form (c) containing surface guanidine groups;
(3) reacting (d) with thiocarbamoyl (C(S)NHR) reagents e.g. alkyl thiocarbamoyl halides or other thiocarbamoyl reagents to form (c) surface modified with thiourea group;
(4) reacting (d) with carbamoyl (C(O)NHR) reagents e.g. alkyl carbamoyl halides or other carbamoyl reagents to form (c) surface modified with urea group; or
(5) grafting (d) to a solid phase support (preferably a group comprising polystyrene, modified polystyrene and PEGA) through a linker (preferably acid labile linker e.g. chlorotritylchloride, Wang, Rink, Sieber or related resins).
Preferred Conjugate: In (c), (d) is covalently bound to (a). (c) Contains at least one surface group not occupied by (a) and is preferably of formula DRn. (a) Is a protein denaturant selected from (thio)ureas, sulfonylureas, (thio)semicarbazides, hydrazides, guanidines or chaotropes. (d) Is a multivalent functional dendrimer having a dendrimeric structure that extends from at least one core point through multiple generations of successive layers to end in surface group. Each layer is having at least branching point. (d) Is globular or tree-shaped. R is bound to the surface group (preferably amine) of (d). Each linker group V terminates in at least one surface group W. The generation of (d) ranges from 0 - 20 (preferably 1 - 10, especially 2 - 6). The molecular mass of (d) is 50 - 30000 (preferably 100 - 20000, especially 300 - 15000). The number of surface groups on (d) lies between 2 - 256 (preferably 2 - 64, more preferably 8 - 32, especially 4, 8, 16, 32 or 64). (d) Is a conjugate of at least two multivalent functional dendrimers. The conjugate is a poly(propyleneimine) dendrimer, poly(ethlyleneimine) dendrimer or poly(amidoamine) dendrimer (preferably (R2NCH2CH2CH2)2N(CH2)4N(CH2CH2CH2NR2)2, ((R2NCH2CH2NHCOCH2CH2)2N(CH2))2, N((CH2)2N(CH2CH2CONHCH2CH2N(CH2CH2CONHCH2CH2N(CH2CH2CONHCH2CH2NR2)

2)2)3, N(CH2CH2N(CH2CH2CONHCH2CH2NR2)2)3 or
(CH2N(CH2CH2CONHCH2CH2N(CH2CH2CONHCH2CH2N(CH2CH2CONHCH2CH2NR2)2)2)
2).
D = dendrimer of formula X-(V)a-(W)b;
X = a multifunctional segment with at least one branching point;
V = a linker or spacer group (optionally branched);
W = a surface group;
a and b = integer;
R = radical of (a) preferably -(CH2)3N((CH2)3NHY)2, -
(CH2)3N((CH2)3N((CH2)3N(CH2CH2NHY)2)2)2,
-(CH2)3N(((CH2)3N((CH2)3NHY)2)2)2; -(CH2)2C(O)NH(CH2)NHY,
-(CH2)2CONH(CH2)N(CH2CH2NHY)2,
-(CH2)2CONH(CH2)2N(CH2CH2CONHCH2CH2N(CH2CH2CONHCH2CH2NHY)2)2 or
-(CH2)2CONH(CH2)2N(CH2CH2CONHCH2CH2N((CH2CH2CONHCH2CH2N(CH2CH2CONH
CH2CH2NHY)2)2)2;
Y = C(O)NHZ, C(S)NHZ, C(NH)NHZ, S(O)2NHZ,C(O)NHOH, C(S)NHOH,
C(NH)NHOH, S(O)2NHOH, C(O)NHNHZ, C(S)NHNHZ, C(NH)NHNHZ or
S(O)2NHNHZ;
Z = CH2CH2NH2, CH2CH(CH2NH2)2, CH2CH2OH, (CH2)3NH2, CH(CH2NH2)2,
C(CH2NH2)3, CH((CH2)3NH2)CH2CH2NH2, (CH2)3OH, CH(CH2OH)2 or
C(CH2OH)3; and
n = greater than 1.
BIOLOGY - Preferred Method: The analysis of the product(s)
obtained by treating (b) with the dendrimer conjugates
involves:
(i) incubating the treated protein aggregate with a broad spectrum
protease such as proteinase K; and
(ii) detecting remaining protein aggregates by SDS-PAGE and
immunoblotting with protein-specific antibodies, ELISA,
immunoelectrophoresis and/or immunohistochemistry.
The step (ii) involves incubating the treated (b) with an antibody
sensitive to changes in the structure of a protein present in the
protein aggregate. The method further involves repeating steps (i)
and (ii) with a different dendrimer conjugate and
optionally comparing results from the dendrimer
conjugates to obtain information of the origin of (b). The method
additionally involves treatment of the treated (b) with a protein
denaturant e.g. urea between steps (i) and (ii).
Preferred Protein: (b) is selected from amyloid precursor protein,
Abeta peptide, alpha1-antichymotrypsin, tau, non-Abeta-component,
presenillin 1, presenillin 2, apoE, prion protein including
protease resistant prion protein, superoxide dismutase, Pick body,
alpha-synuclein, anylin, immunoglobulin G-chain, transthyretin,
procalcitonin, beta2-microglobulin, atrial natriuretic factor,
serum amyloid A, ApoA1, Gelsolin or Huntingtin.
ABEX EXAMPLE - Amino terminated dendrimer (1.5 equivalent)
was added to a chlorityl-chloride resin (1 equivalent) in
dichloromethane and suspended in N-methylpyrrolidine and an
adequately protected isocyanate (5 equivalent). The mixture was
shaken for 2 days at room temperature. The resin was washed with
dichloromethane and N-methylpyrrolidine. The product was
deprotected and the resin was cleaved off using trifluoroacetic
acid (50%) in dichloromethane to yield thiourea-dendrimer
conjugate.
FS CPI
MC CPI: A10-E01; A12-V01; B04-C03E; B11-C08; B11-C09;
B12-K04A; B14-F01B; B14-F07; B14-J01; B14-N10; B14-N11;
B14-N16; B14-S01; B14-S04

L144 ANSWER 44 OF 50 WPIX COPYRIGHT 2010 THOMSON REUTERS on STN
AN 2004-257168 [200424] WPIX Full-text
DNC C2004-100419 [200424]
DNN N2004-204463 [200424]
TI New furanone derivatives, useful as antimicrobial and/or
antifouling agents, or in medical, scientific, and/or biological
applications
DC A96; B03; C02; D21; D22; E13; G02; P34; P43; P11; P13

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IN   KUMAR N
PA   (BIOS-N) BIOSIGNAL LTD; (BIOS-N) BIOSIGNAL PTY LTD; (KUMA-I) KUMAR
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CYC  104
PI   WO 2004016588    A1 20040226 (200424)* EN  77[0]
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     AU 2003257229    A1 20040303 (200457)  EN
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     EP 1539692       A1 20050615 (200539)  EN
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     US 20050215772   A1 20050929 (200564)  EN
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     CN 1688543       A  20051026 (200618)  ZH
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     JP 2006514610    T  20060511 (200635)  JA  56
     IN 2005KN00460   A  20060224 (200639)  EN
     IN 215543        B  20080229 (200966)  EN
ADT  WO 2004016588 A1 WO 2003-AU1053 20030819; AU 2003257229
     A1 AU 2003-257229 20030819; CN 1688543 A CN
     2003-824399 20030819; EP 1539692 A1 EP 2003-787526
     20030819; EP 1539692 A1 WO 2003-AU1053 20030819; US
     20050215772 A1 WO 2003-AU1053 20030819; JP 2006514610 T
     WO 2003-AU1053 20030819; IN 2005KN00460 A WO
     2003-AU1053 20030819; JP 2006514610 T JP 2004-528184
     20030819; IN 2005KN00460 A IN 2005-KN460 20050318;
     US 20050215772 A1 US 2005-525231 20050422; IN 215543 B
     PCT Application WO 2003-AU1053 20030819; IN 215543 B
     IN 2005-KN460 20050318; IN 215543 B IN 2005-KN460
     20050318
FDT  AU 2003257229 A1 Based on WO 2004016588 A; EP 1539692 A1 Based on
     WO 2004016588 A; JP 2006514610 T Based on WO 2004016588 A
PRAI AU 2002-950862       20020819
IC   ICM C07D207-36
     ICS A01N043-08; A01N043-36; A61K031-341; A61K031-4015; A61K007-16;
         A61L012-14; A61P017-10; A61P031-00; A61P033-00; B08B017-02;
         C07D207-44; C07D307-58; C08F224-00
IPCI A01C0001-00 [I,A]; A01G0007-06 [I,A]; A01N0043-02 [I,C];
     A01N0043-08 [I,A]; A01N0043-34 [I,C]; A01N0043-36 [I,A];
     A61K0031-4015 [I,A]; A61K0047-02 [I,C]; A61K0047-04 [I,A];
     A61K0047-30 [I,A]; A61K0009-06 [I,A]; A61K0009-08 [I,A];
     A61K0009-10 [I,A]; A61K0009-12 [I,A]; A61K0009-14 [I,A];
     A61K0009-72 [I,A]; A61L0027-00 [I,A]; A61L0029-00 [I,A];
     A61P0031-00 [I,C]; A61P0031-04 [I,A]; C07D0207-00 [I,C];
     C07D0207-38 [I,A]; C07D0307-00 [I,C]; C07D0307-58 [I,A];
     C07D0307-66 [I,A]
IPCR A01N0043-02 [I,C]; A01N0043-08 [I,A]; A01N0043-34 [I,C];
     A01N0043-36 [I,A]; A61K0031-341 [I,A]; A61K0031-341 [I,C];
     A61K0031-4015 [I,A]; A61K0031-4015 [I,C]; A61L0012-00 [I,C];
     A61L0012-14 [I,A]; A61L0002-16 [I,A]; A61L0002-16 [I,C];
     A61P0017-00 [I,C]; A61P0017-10 [I,A]; A61P0031-00 [I,A];
     A61P0031-00 [I,C]; A61P0033-00 [I,A]; A61P0033-00 [I,C];
     B08B0017-00 [I,C]; B08B0017-02 [I,A]; C07D0207-00 [I,C];
     C07D0207-36 [I,A]; C07D0207-38 [I,A]; C07D0207-44 [I,A];
     C07D0307-00 [I,C]; C07D0307-34 [I,A]; C07D0307-58 [I,A];
     C07D0307-60 [I,A]; C07D0307-66 [I,A]; C08F0224-00 [I,A];
     C08F0224-00 [I,C]
EPC  A01N0043-08; A01N0043-36; A61L0002-16; A61L0012-14; C07D0207-38;
     C07D0207-44; C07D0307-34; C07D0307-60; C07D0307-66
ICO  M07D0207:38; M07D0207:44B; M07D0307:34C; M07D0307:60; M07D0307:66
NCL  NCLM  530/409.000
     NCLS  536/027.100; 536/028.100; 548/543.000
FCL  A01C0001-00 B; A01G0007-06 A; A01N0043-08 H; A01N0043-36 C;
     A41B0013-02 N; A61F0013-18 381; A61K0031-4015; A61K0047-04;
     A61K0047-30; A61K0009-06; A61K0009-08; A61K0009-10; A61K0009-12;
     A61K0009-14; A61K0009-72; A61L0027-00 E; A61L0027-00 M;
     A61L0029-00 P; A61P0031-04; C07D0207-38 (CSP); C07D0307-58;
     C07D0307-66
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FTRM 2B022; 2B051; 3B029; 3B200; 4C003; 4C037; 4C069; 4C076; 4C081;
4C086; 4C201; 4H011; 3B200/AA01; 4C086/AA01; 4H011/AA02;
3B200/AA03; 4C086/AA03; 4C076/AA08; 3B200/AA09; 4C076/AA12;
4C076/AA22; 4C076/AA24; 4C076/AA29; 4C076/AA93; 2B051/AB01;
4C081/AB05; 2B051/AB07; 4C081/AB34; 4C081/AC01; 4C081/AC08;
4C069/AC17; 4C069/BA01; 4H011/BA01; 4C086/BA03; 4C069/BA08;
4C081/BA14; 2B051/BA15; 2B022/BA21; 2B051/BB01; 4C076/BB01;
4H011/BB08; 4H011/BB09; 4C076/BB11; 4C069/BB12; 2B051/BB14;
4C076/BB21; 3B200/BB24; 4C076/BB31; 4C086/BC06; 4C069/BC12;
4C076/CC10; 4C076/CC11; 4C076/CC15; 4C076/CC16; 4C076/CC17;
4C076/CC31; 4C076/DD21; 2B022/EA10; 4C076/EE01; 4C086/FA03;
4C037/JA04; 4C086/MA13; 4C086/MA17; 4C086/MA23; 4C086/MA28;
4C086/MA43; 4C086/MA52; 4C086/MA55; 4C086/MA59; 4C086/MA66;
4C086/NA14; 4C086/ZA34; 4C086/ZA36; 4C086/ZA67; 4C086/ZA81;
4C086/ZA94; 4C086/ZA96; 4C086/ZB35

AB WO 2004016588 A1 UPAB: 20091015

NOVELTY - Furanone **derivatives** (II)-(VI) are new.

DETAILED DESCRIPTION - Furanone **derivatives** of **formula** (II)-(VI) are new.

R1, R2 = H or optionally substituted alkyl, alkoxy, oxoalkyl, alkenyl, aryl, or arylalkyl, optionally interrupted by at least one heteroatom, straight or branched chain, hydrophilic, or fluorophilic;

R3, R4 = H, halo, optionally substituted alkyl, optionally substituted alkoxy, optionally substituted aryl, or optionally substituted arylalkyl;

R5 = H; hydroxy; optionally substituted alkyl, alkoxy, oxoalkyl, alkenyl, aryl, or arylalkyl; forms part of an amino acid; or is a nucleoside, an oligomer, a polymer, a **dendrimer**, a substrate, or a carrier;

X = O or NR6;

R6 = R1;

Z = as for R2, halo, OC(O)R2, =O, amine azide, thiol, mercaptoaryl, arylalkoxy, mercaptoarylalkyl, SC(O)R2, OS(O)2R2, NHC(O)R2, -NR2, or NHR2.

INDEPENDENT CLAIMS are also included for the following:

(a) preparation of compounds (II)-(VI);

(b) an oligomer or a polymer formed by oligomerizing or polymerizing a compound (II)-(VI) directly or with at least one other monomer;

(c) a composition comprising at least one compound (II)-(VI) optionally in combination with organic or inorganic polymeric substances and a carrier or diluent;

(d) a method for treating or preventing biofilm formation on a surface, the method comprising contacting the surface with a compound (II)-(VI);

(e) a medical device incorporating a compound (II)-(VI) on at least one surface of the device;

(f) an implant device having at least one surface associated with (II)-(VI);

(g) a shellfish or aquaculture apparatus having at least one surface associated with (II)-(VI); and

(h) an optical lens, where at least a part of its surface is associated with (II)-(VI).

ACTIVITY - Antimicrobial; Dermatological; Antiseborrheic; CNS-Gen.; Respiratory-Gen.; Antiinflammatory; Auditory; Vulnerary.

MECHANISM OF ACTION - None given.

USE - (II)-(VI) are useful as antimicrobial and/or antifouling agents; or in medical, scientific, and/or biological applications. For forming an oligomer or a polymer, or in a surface coating or polymer. For treating an infection in a human or animal. For treating an infection or condition characterized by biofilm formation. The condition includes cystic fibrosis, dental caries, periodontitis, otitis media, muscular skeletal infections, necrotizing fascitis, biliary tract infection, osteomyelitis, bacterial prostatitis, native valve endocarditis, cystic fibrosis pneumonia, melioidosis, or nosocomial infection. The infection is ICU pneumonia or an infection associated with sutures, exit sites, arteriovenous sites, scleral buckles, contact lenses, urinary catheter cystitis, peritoneal dialysis, peritonitis, IUDs, endotracheal tubes, Hickman catheters, central venous catheters, mechanical heart valves, vascular grafts, biliary stent blockage, or orthopedic devices, penile prosthesis. The infection can be a skin infection, burn infection, or wound infection. Also for acne. As dentifrice, mouthwash, or a composition for treating dental caries. For treating or preventing biofilm formation on a surface or for removing the biofilm from the surface, e.g. surfaces of an optical lens, a filter, toilet, bowls, bathtubs, drains, highchairs, counter tops, vegetables, meat processing rooms, butcher shops, food preparation areas, air ducts, air-conditioners, carpets, paper or woven product treatment, nappies (diapers), personal hygiene products, washing machines, implant

device (e.g. artificial heart valve or hip joint, an indwelling catheter, pacemaker, or surgical pin), shower curtains or liners, upholstery, laundry, and carpeting (all claimed).

TECH ORGANIC CHEMISTRY - Preparation (claimed): (II)-(IV) are prepared by reacting a compound of formula (I) with a compound of formula, R5NH2. (III) is prepared by dehydration of (II). Preferably, the dehydration is carried out in the presence of a dehydrating agent including phosphorus pentoxide, silica gel, molecular sieves, alumina, acidic resins and polymers, phosphorus oxychloride, acetic anhydride, N,N'-dicyclohexylcarbodiimide (DCC), trifluoroacetic acid, sulfuric acid, trifluoroacetic anhydride, or trifluorosulfonic acid anhydride (triflic anhydride).

R = hydroxy or halo.

----- = a single bond when R is absent, or is absent; provided that at least one of R1-R4 is halogen.

POLYMERS - Preferred Monomers: In (b), the other monomer includes acrylate ester, e.g. optionally substituted alkyl, hydroxyalkyl, aminoalkyl, or optionally substituted aryl acrylates or methacrylates, crotonates, optionally substituted acrylonitriles, vinyl alcohols or acetates, styrene, or siloxanes.

Preferred Composition: In (c), the carrier or diluent is a liquid. The composition is in the form of a solution or suspension of at least one (II)-(VI). The liquid is an aqueous solvent or a non-aqueous solvent including organic solvent(s). The liquid is an ionic liquid. The composition is in an aerosol or powder formulation. The compound is mixed with a polymer or bound to or adsorbed onto a polymer. The composition is formulated as a disinfectant or cleaning formulation or a pharmaceutical composition. The composition may also be in the form of a powder, dispersion, emulsion or gel.

Preferred Surface: In (d), the surface may be formed of a metal, an organic and inorganic polymer, a natural or synthetic elastomer, board, glass, wood, paper, concrete, rock, marble, gypsum, or ceramic materials which optionally are coated. The surface is a coating which is an enamel, varnish, or paint. The surface is a soft surface or a surface of a fiber which is in the form of a yarn, a textile, a vegetable fiber, or a rock wool.

BIOLOGY - Preferred Microorganisms: In (d), the biofilm is produced by a bacteria of the class Pseudomonas, e.g. Pseudomonas aeruginosa. It is produced by an organism including bacteria, algae, fungi, or protozoa.

ABEX DEFINITIONS - Preferred Definitions: - R5 = D- or L-nucleoside, oligomer or polymer, dendrimer, a substrate, or a surface; - R4 = halo.

ADMINISTRATION - (II)-(VI) or compositions comprising them are administered parenterally or non-parenterally, e.g. topical, intradermal, intramuscular, intraperitoneal, intravenous, subcutaneous, intranasal, epidural, ophthalmic, or oral administration; or by infusion or bolus injection, or by absorption through epithelial or mucocutaneous linings (all claimed).

SPECIFIC COMPOUNDS - 9 Compounds (III) are specifically claimed, e.g. (IIIa). - 6 Compounds (IV) are specifically claimed, e.g. (IVa).

EXAMPLE - A solution of 0.2 g 3-butyl-5-dibromomethylene-2(5H)furanone in 5 ml aniline was allowed to stand at room temperature for 24 hours. The mixture was diluted with 25 ml dichloromethane and washed with 20 ml 2M aqueous hydrochloric acid. The organic phase was dried over sodium sulfate and evaporated to yield 0.3 g yellow viscous oil. The crude product was chromatographed on silica using 19:1 dichloromethane/ethylacetate as the eluent. The major product, a pale yellow band, was collected and recrystallized from light petroleum to yield 0.24 g (92%) 3-butyl-5-dibromomethyl-5-hydroxy-1-phenyl-1,5-dihydropyrrol-2-one as colorless prisms.

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FS   CPI; GMPI
MC   CPI: A04-D; A04-F; A08-M02; A10-B01; A11-B05; A12-L02A; A12-V02;
          A12-V03D; A12-W11L; B04-B03A; B04-B03B; B04-C03;
          B04-C03E; B04-L01; B04-L02; B04-N04; B05-B01B;
          B07-A01; B07-D02; B11-C04A; B12-M02A; B14-A01; B14-A02;
          B14-A03; B14-A04; B14-A05; B14-F02D; B14-K01; B14-N01;
          B14-N02; B14-N06A; B14-N06B; B14-N07A; B14-N17D; C04-B03A;
          C04-B03B; C04-C03; C04-C03E; C04-L01; C04-L02;
          C04-N04; C05-B01B; C07-A01; C07-D02; C11-C04A; C12-M02A;
          C14-A01; C14-A02; C14-A03; C14-A04; C14-A05; C14-B15;
          C14-F02D; C14-K01; C14-N01; C14-N02; C14-N06A; C14-N06B;
          C14-N07A; C14-N17D; D08-A05; D08-B08; D09-A01C; D09-C01;
          D09-C01A; E05-E01; E07-A01; E07-D02; E11-D; E11-F03;
          E11-F05; E11-H; G02-A05G

L144 ANSWER 45 OF 50  WPIX COPYRIGHT 2010        THOMSON REUTERS on STN
AN   2004-637073 [200462]   WPIX  Full-text
DNC  C2004-229107 [200462]
TI   New phosphorus-containing dendrimers, for use as
     extractants for actinides and lanthanides, comprises a
     core and generation(s) plus external layer of
     phosphonoacetyl groups
DC   A26; A96; A97; B07; J01; J04; K06; K07; M25
IN   BOEHMER V; BOHMER V; DOZOL J; DOZOL J F; SCHMIDT C; WANG P;
     CHRISTIAN S; JEAN-FRANCOIS D; PINGSHAN W; VOLKER B
PA   (COMS-C) COMMISSARIAT ENERGIE ATOMIQUE; (BOHM-I) BOHMER V;
     (DOZO-I) DOZOL J; (SCHM-I) SCHMIDT C; (WANG-I) WANG P
CYC  107
PI   FR 2851565       A1 20040827 (200462)* FR  44[6]
     <--
     WO 2004076509    A2 20040910 (200462)  FR
     <--
     EP 1597304       A2 20051123 (200577)  FR
     <--
     CN 1753937       A  20060329 (200649)  ZH
     JP 2006519288    T  20060824 (200656)  JA  26
     US 20060205920   A1 20060914 (200661)  EN
     EP 1597304       B1 20061213 (200703)  FR
     DE 602004003680 E  20070125 (200721)  DE
     CN 100369957     C  20080220 (200840)  ZH
     US 7763684       B2 20100727 (201049)  EN
ADT  FR 2851565 A1 FR 2003-2343 20030226; CN 1753937 A
     CN 2004-80005219 20040226; CN 100369957 C CN
     2004-80005219 20040226; DE 602004003680 E DE
     2004-602004003680 20040226; EP 1597304 A2 EP 2004-714826
     20040226; EP 1597304 B1 EP 2004-714826 20040226; DE
     602004003680 E EP 2004-714826 20040226; WO 2004076509 A2
     WO 2004-FR50083 20040226; EP 1597304 A2 WO
     2004-FR50083 20040226; JP 2006519288 T WO 2004-FR50083
     20040226; US 20060205920 A1 WO 2004-FR50083 20040226
     ; EP 1597304 B1 WO 2004-FR50083 20040226; DE
     602004003680 E WO 2004-FR50083 20040226; JP 2006519288 T
     JP 2006-502180 20040226; US 20060205920 A1 US 2006-546465
     20060407; US 7763684 B2 PCT Application WO 2004-FR50083
     20040226; US 7763684 B2 US 2006-546465 20060407
FDT  DE 602004003680 E Based on EP 1597304 A; EP 1597304 A2 Based on WO
     2004076509 A; JP 2006519288 T Based on WO 2004076509 A; EP 1597304
     B1 Based on WO 2004076509 A; DE 602004003680 E Based on WO
     2004076509 A; US 7763684 B2 Based on WO 2004076509 A
PRAI FR 2003-2343       20030226
IPC1 C07F0009-00 [I,C]; C07F0009-53 [I,A]; C08F0291-00 [I,A];
     C08F0291-00 [I,C]; C08F0008-00 [I,C]; C08F0008-40 [I,A];
     C08G0073-00 [I,A]; C08G0073-00 [I,C]; C08G0079-00 [I,C];
     C08G0079-02 [I,A]; C08G0083-00 [I,C]; C08G0083-00 [I,A];
     C08G0083-00 [I,C]; C08G0083-00 [I,A]; C08G0083-00 [I,C];
     C08L0085-00 [N,C]; C08L0085-02 [N,A]; C08G0069-00 [I,C];
     C08G0069-48 [I,A]; C08G0079-00 [I,C]; C08G0079-04 [I,A]
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IPCR B01D0015-00 [I,A]; B01D0015-00 [I,C]; B01D0015-02 [I,A]; B01D0015-02 [I,C]; B01J0020-22 [I,C]; B01J0020-26 [I,A]; C08G [I,S]; C08G0069-00 [I,C]; C08G0069-48 [I,A]; C08G0079-00 [I,C]; C08G0079-04 [I,A]; C08G0083-00 [I,A]; C08G0083-00 [I,C]; C22B0003-00 [I,C]; C22B0003-38 [I,A]; C22B0059-00 [I,A]; C22B0059-00 [I,C]; C22B0060-00 [I,C]; C22B0060-02 [I,A]; G21F0009-06 [I,A]; G21F0009-06 [I,C]

EPC B01D0015-00; B01J0020-26; C08G0083-00D; C22B0003-00D2M2P2B20X; C22B0059-00; C22B0060-02H

NCL NCLM 528/398.000; 525/420.000
NCLS 528/422.000; 424/DIG.016; 525/538.000; 977/754.000

FCL C07F0009-53; C08F0291-00; C08F0008-40

FTRM 4H050/4J026; 4J100/4H050/AA01; 4J026/AA45; 4H050/AB46; 4J026/AC00; 4J026/BA32; 4J026/EA09; 4J100/HA35; 4J100/HC75; 4J100/HG06; 4J100/JA15

AB FR 2851565 A1 UPAB: 20100802
NOVELTY - Phosphorus-containing dendrimers (I) comprising:
(a) a core; and
(b) a generation plus an external layer of the same or different phosphonoacetyl groups, are new.
DETAILED DESCRIPTION - New phosphorus-containing dendrimers (I) comprise (a) a core and (b) at least one generation plus an external layer of same or different groups of formula -C(O)-CH2-P(O)R1R2 (I').
R1, R2 = alkyl, alkoxy or aryl.
An INDEPENDENT CLAIM is included for the preparation of (I).
USE - (I) are used in a claimed method of extracting at least one actinide or lanthanide metal from aqueous solution, involving contacting the solution with (I) (preferably by dissolving (I) in the metal solution), then separating (I) containing entrapped metal(s) from the aqueous solution (preferably by filtration, such (I) plus fixed metal(s) is retained on the filter). Typically (I) are useful for removing actinides from aqueous effluents from used nuclear fuel reprocessing plants or from solutions obtained by dissolution of used nuclear fuels. Other possible applications of (I) are for extracting metals in general; as catalysts or catalyst carriers; or as agents for release of pharmaceutical active agents.
ADVANTAGE - (I) have an ordered structure with a large number of terminal functional groups. They give good results in metal extraction, without the need for complex liquid-liquid extraction techniques such as use of pulsed columns or batteries of centrifugal extractors.

TECH POLYMERS - Preferred Dendrimers: In (I):
(1) the core (a) is nitrogen (N) or a diamine residue of formula N-(CH2)m1-N and (I) contains n generations of groups of formula -(CH2)m2-N(R3)-;
(2) (a) is N and (I) contains n generations of groups of formula -(CH2)m3-CONH-(CH2)m4-N(R4)-; or
(3) (a) is a functionalized mineral particle, especially a silica particle having on its surface one or more -CONH- groups forming a bridge between the first generation groups and the core particle.
m1 = 2-4;
n = 1-10;
m2 = 1-4;
R3, R4 = direct bond for (n-1) generations or H for the n'th generation (i.e. the last intermediate layer);
m3, m4 = 2-5.
Preparation: Claimed preparation of (I) involves reacting a base dendrimer (II), having an external layer with a suitable reactive terminal function (preferably NH2), with a phosphonoacetic acid of formula HO-C(O)-CH2-P(O)R1R2 (III). Reaction is preferably carried out in presence of a catalyst (especially triethylamine) and optionally a coupling activator (especially cyclohexyl carbodiimide), optionally on a support (specifically silica particles).

ABEX DEFINITIONS - Preferred Definitions: - R1, R2 = phenyl or 1-18C alkoxy.
EXAMPLE - A base dendrimer comprising N,N-bis-(2-(2-(diphenylphosphonyl)-acetylamino)-ethyl)-3-aminopropylamine (H2N-(CH2)3-N(CH2CH2-NHCOCH2-P(O)Ph2) (IIa) was

grafted onto spheres functionalized with carboxy groups, to give a dendrimer (Ia) of the type Sphere-CONH-(CH2)3-N(CH2CH2-NHCOCH2-P(O)Ph2 (only one dendrimer arm being shown for simplicity). (Ia) (300 mg) was used for extraction of europium and americium from 3M nitric acid solution. The Kd values were 57 for europium and 132 for americium, showing that (Ia) extracted both europium and americium, with some selectivity for americium.

FS CPI

MC CPI: A05-F03; A10-E; A12-V04A; B04-C03E; B05-B01F; B05-B01G; B11-B; B12-M05; J01-D05; J04-E03; J04-E04; K06-C; K07-B03; M25-B01; N05-D; N07-D01; N07-D08A

L144 ANSWER 46 OF 50 WPIX COPYRIGHT 2010 THOMSON REUTERS on STN

AN 2003-877151 [200381] WPIX Full-text

DNC C2003-247714 [200381]

TI New glycodendrimer useful for treating e.g. sepsis, eczema, rheumatoid arthritis, septic shock, retinal vasculitis and psoriasis comprises carbohydrate moieties covalently linked to carboxylic terminated dendrimer

DC B04; C03

IN DUNCAN R; DUNCAN R W S O P; GIANASI E; SHAUNAK S; SHAUNAK S D O I D

PA (DUNC-I) DUNCAN R; (GIAN-I) GIANASI E; (POLY-N) POLYTHERICS LTD; (SHAU-I) SHAUNAK S

CYC 101

PI WO 2003089010 A1 20031030 (200381)* EN 63[42]
<--
AU 2003214422 A1 20031103 (200438) EN
<--
EP 1496941 A1 20050119 (200506) EN
<--
US 20050214247 A1 20050929 (200564) EN
<--
JP 2005532421 T 20051027 (200571) JA 78
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IN 2004DN02794 A 20070420 (200737) EN
AU 2003214422 B2 20080221 (200839) EN

ADT WO 2003089010 A1 WO 2003-GB1133 20030318; AU 2003214422 A1 AU 2003-214422 20030318; EP 1496941 A1 EP 2003-709994 20030318; JP 2005532421 T JP 2003-585761 20030318; EP 1496941 A1 WO 2003-GB1133 20030318; US 20050214247 A1 WO 2003-GB1133 20030318; JP 2005532421 T WO 2003-GB1133 20030318; IN 2004DN02794 A WO 2003-GB1133 20030318; IN 2004DN02794 A IN 2004-DN2794 20040920; US 20050214247 A1 US 2005-511317 20050531; AU 2003214422 B2 AU 2003-214422 20030318

FDT AU 2003214422 A1 Based on WO 2003089010 A; EP 1496941 A1 Based on WO 2003089010 A; JP 2005532421 T Based on WO 2003089010 A; AU 2003214422 B2 Based on WO 2003089010 A

PRAI GB 2002-9022 20020419

IC ICM A61K047-48; C08G073-00

IPCI A61K0031-70 [I,A]; A61K0031-70 [I,C]; A61K0031-7008 [I,A]; A61K0031-7008 [I,C]; A61K0031-7028 [I,A]; A61K0031-7028 [I,C]; A61K0047-48 [I,A]; A61K0047-48 [I,C]; A61P0001-00 [I,C]; A61P0001-04 [I,A]; A61P0017-00 [I,A]; A61P0017-00 [I,C]; A61P0019-00 [I,C]; A61P0019-02 [I,A]; A61P0029-00 [I,A]; A61P0029-00 [I,C]; A61P0031-00 [I,C]; A61P0031-04 [I,A]; A61P0035-00 [I,C]; A61P0035-04 [I,A]; A61P0037-00 [I,C]; A61P0037-06 [I,A]; C07H0013-00 [I,C]; C07H0013-02 [I,A]; C08B0037-00 [I,A]; C08B0037-00 [I,C]; C08G0073-00 [I,A]; C08G0073-00 [I,C]

IPCR A61K0031-7028 [I,A]; A61K0031-7028 [I,C]; A61K0047-48 [I,A]; A61K0047-48 [I,C]; A61P0001-00 [I,C]; A61P0001-04 [I,A]; A61P0017-00 [I,A]; A61P0017-00 [I,C]; A61P0019-00 [I,C]; A61P0019-02 [I,A]; A61P0029-00 [I,A]; A61P0029-00 [I,C]; A61P0031-00 [I,C]; A61P0031-04 [I,A]; A61P0035-00 [I,C];

A61P0035-04 [I,A]; A61P0037-00 [I,C]; A61P0037-06 [I,A];
C07H0013-00 [I,C]; C07H0013-02 [I,A]; C08B0037-00 [I,A];
C08B0037-00 [I,C]; C08G0073-00 [I,A]; C08G0073-00 [I,C]

EPC A61K0047-48K6

NCL NCLM 424/078.270
NCLS 525/054.200

FCL A61K0031-7028; A61K0047-48; A61P0001-04; A61P0017-00; A61P0019-02;
A61P0029-00; A61P0029-00 101; A61P0031-04; A61P0035-04;
A61P0037-06; C08B0037-00 G; C08B0037-00 H; C08G0073-00;
C07H0013-02 (CSP)

FTRM 4C057; 4C076; 4C086; 4C090; 4C201; 4J043; 4C086/AA01; 4C086/AA02;
4C090/AA02; 4C086/AA03; 4C090/AA08; 4C057/AA17; 4C076/AA94;
4C090/BA61; 4C057/BB02; 4C057/BB03; 4C057/BB04; 4C076/BB11;
4C090/BB12; 4C076/BB24; 4C090/BB98; 4C057/CC04; 4C076/CC04;
4C090/DA23; 4C086/EA02; 4C086/EA03; 4C086/EA22; 4C086/EA24;
4C076/EE26.A; 4C076/EE59; 4C057/HH03; 4C086/MA01; 4C086/MA04;
4C086/NA14; 4J043/PA13; 4J043/PB24; 4J043/QA03; 4J043/UB22;
4J043/UB24; 4C086/ZA89; 4C086/ZA96; 4C086/ZB11; 4C086/ZB15;
4C086/ZB26; 4C086/ZB35

AB WO 2003089010 A1 UPAB: 20060121

NOVELTY - A **glycodendrimer** (I) comprising carbohydrate moieties covalently linked to carboxylic terminated **dendrimer** is new.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are included for the following:

(1) use of (I) in the manufacture of a medicament for the treatment of a disease in which chemokines and cytokines are increased and angiogenesis is increased;

(2) preparation of (I) involving covalently linking an amino **functionalized** carbohydrate to a carboxy terminated **dendrimer** by using a coupling agent; and

(3) a process for linking a molecule e.g. a biologically active molecule, to an anionic **dendrimer** involving reacting the **dendrimer** with the biologically active molecule in presence of a coupling agent (e.g. carbodiimide coupling agent).

ACTIVITY - Antiinflammatory; Antibacterial; Immunosuppressive; Dermatological; Antipsoriatic; Vulnerary; Antiarthritic; Antirheumatic; Vasotropic; Antiulcer; Gastrointestinal-Gen.; Cytostatic.

MECHANISM OF ACTION - Angiogenesis inhibitor; Release of chemokine (preferably macrophage inflammatory protein (MIP-1beta)) and pro-inflammatory cytokine (preferably tumor necrosis factor (TNF-alpha), or interleukin (IL-1beta)) inhibitor; Synergist.

Single donor peripheral blood mononuclear (PBMN) cells were isolated and resuspended in macrophage growth medium (RPMI), L-glutamine, penicillin, streptomycin and human serum (10%) at a density of 1 x 10 to the power 6 cells/ml. The cells were then plated in 12 well tissue culture plates and cultured for 15 minutes at 37 degrees C in 5% carbon dioxide. **Dendrimer** gen 3.5-glucosamine (test) was then added at a concentration of 150 microg/ml. The cells were cultured for 30 minutes at 37 degrees C in 5% CO2 and lipopolysaccharide (5 ng/ml) was added. Cell free culture supernatants were harvested 24 hours later and assayed for macrophage inflammatory protein-1beta (MIP-1beta). The release of MIP-1beta from single proton PBMN cells for (test) was found to be 10800 pg/ml. Thus, a significant reduction in the cytokine MIP-1beta release was observed.

USE - In the manufacture of a medicament for the treatment of a disease in which chemokines and cytokines are increased and angiogenesis is increased e.g. for treating severe sepsis, septic shock, systemic inflammatory response associated with sepsis (all caused by liposaccharide from gram negative bacteria or a superantigen toxin from a gram positive bacteria), rheumatological disease, eczema, psoriasis, contraction of tissues and excessive scar formation during wound healing, transplant rejection (e.g. corneal, kidney, heart, lung, heart-lung, skin, liver, gut or bone marrow transplant) or graft versus host disease, rheumatoid arthritis, juvenile chronic arthritis, psoriatic arthritis, reactive arthritis occurring after an infection, acute ankylosing spondylitis, arthritis associated with inflammatory bowel disease, Behcet's disease associated with panuveitis and/or retinal vasculitis, inflammatory bowel disease (e.g. Crohn's disease and ulcerative colitis) and a disease associated with metastatic tumor cell growth. Also for treating a tissue or organ (e.g. cornea) (all claimed).

ADVANTAGE - The simultaneous administration of the **dendrimer** mixture shows synergistic effects with lower doses and less frequent administration resulting in lower toxicity. The **glycodendrimers** are large molecules and tends to accumulate at the site of inflammation more rapidly as compared to its accumulation in the normal healthy tissues.

TECH ORGANIC CHEMISTRY - Preferred Method: The coupling is carried out using a carbodiimide reagent (preferably

1-ethyl-3-(3-dimethylaminopropyl)carbodiimide hydrochloride) at not more than 40 degrees C in an aqueous solution, without the application of an external or additional energy source. Preferred Compound: The carboxy terminated dendrimer is a carboxy terminated poly(amidoamine) (PAMAM) dendrimer. The carbohydrate moiety is a mono-, di-, tri-, oligo- and/or polysaccharide. The carbohydrate group is amino sugar, sulfated amino sugar or their modified derivatives (preferably N-acylated), glucosamine, glucosamine 6-sulfate, glucosamine 3,6-disulfate, glucosamine 3,4,6-trisulfate, N-acetyl glucosamine, N-acetyl glucosamine 6-sulfate, N-acetyl glucosamine 3,6-disulfate, or N-acetyl glucosamine 3,4,6-trisulfate. The dendrimer comprises at least one generation of dendrimers from 1.5 - 9.5 (preferably 2.5 or 3.5). The dendrimer is dendrimer gen. 3,5-glucosamine, dendrimer gen. 3.5-glucosamine 6-sulfate, dendrimer gen. 3.5 N-acetylglucosamine, dendrimer gen. 3.5 N-acetylglucosamine sulfate, dendrimer gen. 3.5-mannosamine, dendrimer gen. 3.5-mannosamine sulfate, dendrimer gen. 3.5-N-acetylmannosamine, dendrimer gen. 3.5-N-acetylmannosamine sulfate and/or their corresponding dendrimer gen. 2.5.

ABEX ADMINISTRATION - (I) is administered at a concentration of 2.5 - 2500 (preferably 25 - 250) microg/ml orally, topically, buccally, rectally, intravenously, intra-arterially (e.g. into the lymphatic circulation), transdermally, subcutaneously, intramuscularly (e.g. into the joint space), intranasally, intravitreally, intraperitoneally, pulmonarily, as aerosol or ocularly (e.g. directly into the eyes as eye drops, by deposition of a pellet in or around the eye, by injection into any chamber within the eye or by direct infusion through an organ) (claimed).
EXAMPLE - Protonated PAMAM dendrimer gen 3.5 (150 mg), N-hydroxysuccinimide (9.6 mg), glucosamine hydrochloride (12.6 mg) and a magnetic stir bar were added to a vial (1.5 ml) sealed with a septum-centered screw cap lid. A nitrogen atmosphere was then introduced into the vial, followed by anhydrous dimethylsulfoxide (DMSO) (0.7 ml) using a syringe. The resulting mixture was stirred until a homogeneous solution was formed. Then, 1,3-dicyclohexylcarbodiimide (17.1 mg) was dissolved in anhydrous DMSO (0.3 ml) under nitrogen atmosphere in a 1.5 ml vial. After 15 minutes, triethylamine (12 micro l) was added to the dendrimer solution by syringe and the solution was stirred overnight at room temperature. Then 1N sodium hydroxide (800 micro l) was added to the reaction mixture. The resulting mixture was transferred to a larger vial, diluted with deionized water (3 ml), filtered to give PAMAM dendrimer gen. 3.5 glucosamine.

FS CPI

MC CPI: B04-C03E; B14-C03; B14-C06; B14-C09; B14-E08; B14-E10C; B14-F02F2; B14-G02; B14-H01; B14-N17; B14-S06; B14-S09; C04-C03E; C14-C03; C14-C06; C14-C09; C14-E08; C14-E10C; C14-F02F2; C14-G02; C14-H01; C14-N17; C14-S06; C14-S09

L144 ANSWER 47 OF 50 WPIX COPYRIGHT 2010 THOMSON REUTERS on STN

AN 2003-393303 [200337] WPIX Full-text

DNC C2005-167535 [200557]

DNN N2005-455895 [200557]

TI Novel marker compound useful for detection and/or quantizations of a sample or sample molecule, suitable for gel electrophoresis, has a monomer unit, a functional group and optionally a core unit

DC A96; B04; D16; S03

IN BERGLUND P M; ELLERVIK U C; FORSSTROEM-OLSSON O; FORSSTROM-OLSSON O; MALMSTROEM A J; MALMSTROEM L G; MALMSTROM A J; MALMSTROM L G

PA (BERG-I) BERGLUND P M; (ELLE-I) ELLERVIK U C; (FORS-I) FORSSTROM-OLSSON O; (LUDE-N) LUDESI AB; (MALM-I) MALMSTROM A J; (MALM-I) MALMSTROM L G

CYC 100
PI WO 2003025581 A1 20030327 (200337)* EN 56[14]
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US 20030070926 A1 20030417 (200337) EN
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EP 1428030 A1 20040616 (200439) EN
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AU 2002337535 A1 20030401 (200452) EN
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ADT WO 2003025581 A1 WO 2002-SE1665 20020917; US 20030070926 A1 Provisional US 2001-322756P 20010918; AU 2002337535 A1 AU 2002-337535 20020917; EP 1428030 A1 EP 2002-773071 20020917; US 20030070926 A1 US 2002-244600 20020917; EP 1428030 A1 WO 2002-SE1665 20020917
FDT EP 1428030 A1 Based on WO 2003025581 A; AU 2002337535 A1 Based on WO 2003025581 A
PRAI US 2001-322756P 20010918
SE 2001-3103 20010918
IC ICM G01N033-68
ICS C08G083-00; G01N027-447
IPCR C08G0083-00 [I,A]; C08G0083-00 [I,C]; G01N0027-447 [I,A]; G01N0027-447 [I,C]; G01N0033-68 [I,A]; G01N0033-68 [I,C]
EPC C08G0083-00D; G01N0027-447B3A2; G01N0033-68A
NCL NCLM 204/461.000
NCLS 204/456.000; 204/459.000; 204/466.000; 204/606.000; 204/610.000; 204/612.000; 204/616.000; 250/252.100; 356/243.100; 356/344.000; 382/128.000; 382/129.000
AB WO 2003025581 A1 UPAB: 20060119
NOVELTY - A marker compound (I) suitable for gel electrophoresis, comprising at least one monomer unit, at least one functional group unit and optionally at least one core unit, where the marker compound has a isoelectric point (pI) of 1-12 and a molecular weight (Mw) of 100-106 Da, is new.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for:

(1) a set (II) of external markers suitable for gel electrophoresis comprising at least two of (I);

(2) a kit of external markers comprising at least two of (I) or at least one of (II), and optionally at least one buffer or buffer systems; and

(3) determining and/or verifying the characteristics of (I) or (II), by pre selecting a theoretic positions, where (I) or (II) is to be positioned, designing (I) or (II) so as to achieve correct characteristics, applying (I) or (II) above onto the gel, separating (I) or (II) in a first dimension, optionally separating (I) or (II) in a second or further dimension, collecting information about the separation, registering the information as digital information, and determining and/or verifying the characteristics after separation.

USE - (I) and (II) are useful for detection and/or quantizations of a sample or sample molecule which is dependent on the pI and molecular size of the marker compound. (I) and (II) are useful for detecting and quantitate sample and/or external landmark in a gel, by adding the sample to the gel, adding (I) or (II), with known identity and known characteristics on the gel, separating the sample or marker compound to form, with (I) or (II) added, an array of spots of the sample proteins and at least two of (I) or (II), respectively, collecting information about the positions of the array spots in at least one image and optionally superimposing the images, registering the information as digital data, and analyzing and/or correcting and optionally changing the image or images to detect, quantify and optionally verify the sample. The separation is performed in at least two dimensions and the array formed is an array in at least two dimensions, where the separation is two-dimensional gel electrophoresis, e.g. polyacrylamide gel electrophoresis. The sample is correlated with (I) or (II) with known positions and characteristics, and optionally the background noise and distortions are corrected, the sample of at least one characteristic is assigned. The known characteristics of (I) or (II) are dependent on their molecular size and pI, and the molecular size and pI to at least one sample is assigned based on the molecular size of (II) (all claimed).

ADVANTAGE - (I) efficiently and rapidly detects and matches the sample in a two-dimensional gel electrophoresis.

DESCRIPTION OF DRAWINGS - The figure shows the general formula of a dendrimer with a central core.

TECH BIOTECHNOLOGY - Preferred Compound: The compound preferably has a

Mw of 103-105 Da, or pI of 3-10. The compound is a dendrimer, and is represented by the general formula: (core unit)n(monomer unit(1....o))x(functional group unit(1...p)).
n = integer from 0-5 representing number of different co-existing optional cores;
o = integer from 2-1000 representing number of different monomers within the monomer unit distributed over x layers;
x = integer from 1-20 representing number of layers; and
p = integer from 1-20 representing the number of different functional groups within one functional group unit.
At least one core is selected from 1,4-diaminobenzene, 1,2-diaminoethane, 2,4,6-triaminotriazine, trimethylenetriamine, 4,4-methylenedianiline, 4,4-ethylenedianiline, trimesic acid, tris(4-amino-phenyl)methanol, benzene-1,2,4,5-tetraamine, pyromellitic acid, mellitic acid or formulae (i) - (iii) and their mixtures.
At least one core is diamine and/or a tri-amine which is of formula H2NCH2CH2NH2 or H2NCH2N(CH2NH2)CH2NH2.
R, R1, R2, R3 = either all NH2 or all CO2H;
(in B) n = 2; and
(in E) n = 1.
At least one monomer is selected from para-aminobenzoic acid, 1,4-diaminobenzene, 1,2-diaminoethane, diaminomethane, beta-alanine, glycine, para-aminobenzoic acid, H2N(CH2)nNH(CH2)mNH2, 3,5-diaminobenzoic acid, 5-amino-isophthalic acid or formula (iv) and their mixtures. Preferably at least one monomer is diaminobenzoic acid which is distributed over 1-10 layer/s.
At least one functional group is selected from poly acids and amino acids comprising 5-amino-isophthalic acid, HO2C(CH2)nR5, 4-mercaptobenzoic acid, 4-aminobenzoic acid, 4-hydroxybenzoic acid or formulae (v) - (vii) or their parts, fluoro chromes such as fluorescamine, isotopes, and their mixtures.
R5 = CO2H, NH2, SH, OH, C(O)NH2 or NC(=NH)NH2; and
R6 = CO2H, SH, OH or NH2.
The compound has known characteristics affecting its migration in a gel during gel electrophoresis, where the known characteristics are pI and molecular size.
Preferred Set: The set forms at least two marker spots in a gel, where at least two marker spots form a grid on the gel, and where the grid is evenly distributed or unevenly distributed over the gel.
Preferred Kit: At least two marker molecules or the set is dissolved upon usage or is pre-dissolved in a solution, and at least one applicator strip suitable for gel electrophoresis is included.
Preferred Method: (II) is applied in the form of a application strips or mixed or applied together with the test samples or applied at the time of casting the gel. Optionally, the separation step is a separation in a second dimension, or in a first and a second dimension, where the first and second dimension is dependent on pI and molecular size of (I). The information is collected using any of the determination process selected from visual light, ultra violet (UV), infra-red (IR), multi spectral imaging, isotope labeling, coloring techniques, e.g. silver staining, Combassie staining, fluorescence, e.g. fluoro chromes such as fluorescamine and their mixtures.

ABEX WIDER DISCLOSURE - Disclosed is the positioning of a marker compound or a set of external markers.
EXAMPLE - Synthesis of marker compounds from commercially available dendrimers was as follows: The dendrimers polypropyleneimine tetradeca amine dendrimer (DAB-Am-16) or polypropyleneimine tetrahexaconta amine dendrimer (DAB-Am-64) were dissolved in a solution

of activated Boc-Asp (OBzl)-OH. DIPEA (0.8 ml) was added and the mixtures were stirred overnight and then slowly added to ice cold water. The precipitate was dried in vacuum and then deprotected and then purified using reverse phase HPLC. Another set of dendrimers was synthesized by coupling DAB-Am-16 or DAB-Am-64 with succinic or phthalic anhydride. The results of the synthesis were dendrimeric structures of the marker compounds.

FS CPI; EPI

MC CPI: A10-E17; A12-E09; A12-L04A; A12-V03C2; B04-C03E; B11-C08D1; B12-K04E; D05-H09; D05-H19

EPI: S03-E03E; S03-E14H

L144 ANSWER 48 OF 50 WPIX COPYRIGHT 2010 THOMSON REUTERS on STN

AN 2004-240443 [200423] WPIX Full-text

DNC C2004-094058 [200423]

TI Dendritic cascade polymers with hydrophilic iodine containing aromatics useful for preparation of X-ray diagnostic agents for vascular diseases and for cancer diagnosis

DC A26; A96; B04

IN MAIER F; PRESS W; RADUECHEL B; RIEFKE B; SCHAEFER M

PA (SCHD-C) SCHERING AG

CYC 1

PI DE 10214217 A1 20031009 (200423)* DE 13[0]

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ADT DE 10214217 A1 DE 2002-10214217 20020322

PRAI DE 2002-10214217 20020322

IPCR A61K0049-04 [I,A]; A61K0049-04 [I,C]; C08G0073-00 [I,C]; C08G0073-02 [I,A]; C08G0083-00 [I,A]; C08G0083-00 [I,C]

EPC A61K0049-04H4; C08G0073-02; C08G0083-00D

AB DE 10214217 A1 UPAB: 20050528

NOVELTY - Cascade polymers with hydrophilic iodine containing aromatics, i.e. polypropyleneamine-dendrimer (POPAM) as polymer with terminal amine groups and vinyl cyanide branch units, a triiodiaromatic signal group, a 1-15C carbon chain, and 1-20C alkyl groups are new.

DETAILED DESCRIPTION - Cascade polymers of formula P-(K)m (I) are new.

P = dendritic POPAM containing m terminal primary amine groups, with vinyl cyanide branch units;

m = 4-128;

K = a triiodoaromatic signal group, where the signal giving group K is a triiodoaromatic of formula (II) (denotes binding site of dendrimer amine group);

L = straight chain, branched, optionally unsaturated 1-15C carbon chain, which can be interrupted by 1-3 S atoms, 1-5 sulfonyl groups, and can be substituted by 1-6 OH groups or 1-3 (CH2)p-COO2OH groups;

p = 0-10;

R1 = H or (CH2)q-COO2OH group;

q = 1-10;

X = OH, O-Na+, O-Meglumin+,or NR2R3;

Y = OH, -O-Na+, -O-Meglumin+ or NR4R5;

R2-R5 = H, straight chain or branched 1-20C alkyl, where alkyl group can be interrupted by 1-6 O atoms and/or can be substituted by 1-6 OH groups;

R2-R5+N = form a heterocyclic ring, which optionally can be substituted by 1-3 OH;

L = -CH2CH2-, -CH2CH2CH2-, -CH2OCH2-, CH2CH(OH)CH2-, CH2OCH2CH2OCH2-;

R1 = H, CH2COOH, CH2CH2COOH,

X, Y when identical = -N(CH3)CH2CH(OH)CH2OH, -N(CH2CH(OH)CH2OH)2, -NHCH2CH(OH)CH2OH, NHCH(CH2OH)2, -N(CH3)CH2CH(OH)CH(OH)CH(OH)CH(OH)CH2OH; -NHCH2CH(OH)CH(OH)CH(OH)CH(OH)CH2OH;

X, Y when not identical = -N(CH2CH(OH)CH2OH)2, -NHCH2CH(OH)CH2OH, -NHCH(CH2OH)2; and

Y = -N(CH3)-CH2-CH(OH)-CH2OH.

INDEPENDENT CLAIMS are also included for:

(1) a process for preparation of the dendritic polymers by reaction of a polymer of formula I with an activated acid derivative of formula (III);

(2) a method for preparation of a pharmaceutical agent by dissolution or suspension of an iodine containing dendritic polymer containing conventional additives in a form suitable for parenteral or enteral administration;

(3) a pharmaceutical agent containing at least one dendritic polymer for preparation of an X-ray diagnostic agent.

W' = Cl, Br or I, or together with adjacent carbonyl group forms a mixed anhydride;

m = 4-128.

All other definitions are as above.

USE - The polymers are useful for preparation of X-ray diagnostic agents for vascular diseases (claimed).

ADVANTAGE - It has been found that iodine containing dendritic polymers with a nitrogen core and containing triiodoaromatic residues are outstandingly valuable for the preparation of X-ray contrast media, especially in the diagnosis and localization of vascular diseases, and in cancer diagnosis.

ABEX DEFINITIONS - R1 = CH2COOH; - L = CH2-O-CH2; - X, Y = NH-CH2-(CH(OH)-CH2OH; - X, Y = N(CH3)-(CH2-CH(OH)-CH2OH.

SPECIFIC COMPOUNDS - 9 Compounds (I) are specifically disclosed, e.g. ((3,5-Bis-(2,3-diacetoxy-propylcarbamoyl)-2,4,6-triiodo-phenyl)-chlorocarbonylmethoxyacetyl-amino)-acetic acid ethyl ester (Ia).

EXAMPLE - ((3,5-Bis-(2,3-diacetoxy-propylcarbamoyl)-2,4,6-triiodo-phenyl)-chlorocarbonylmethoxyacetyl-amino)-acetic acid ethyl ester (Ia), a conjugate of DEB-(PA)(ASTRAMOL(RTM; polypropyleneamine-dendrimer, DEB-(PA) was prepared.

FS CPI

MC CPI: A05-J07; A10-E17B; A12-V03C2; B04-C03E; B12-K07

L144 ANSWER 49 OF 50 WPIX COPYRIGHT 2010 THOMSON REUTERS on STN

AN 2003-239066 [200323] WPIX Full-text

DNC C2003-061173 [200323]

TI Biaryl monomer useful for preparing dendritic polymers for encapsulation of e.g. pharmaceutical active agents comprises a first aryl group and a second aryl group directly covalently bonded to the first aryl group

DC A28; A96; B04; B07; C07

IN THAYUMANAVAN S

PA (TULA-C) TULANE EDUCATIONAL FUND

CYC 93

PI WO 2002077037 A2 20021003 (200323)* EN 92[6]
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AU 2002303146 A1 20021008 (200432) EN
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AU 2002303146 A8 20051013 (200611) EN
<--

ADT WO 2002077037 A2 WO 2002-US8997 20020322; AU 2002303146 A1 AU 2002-303146 20020322; AU 2002303146 A8 AU 2002-303146 20020322

FDT AU 2002303146 A1 Based on WO 2002077037 A; AU 2002303146 A8 Based on WO 2002077037 A

PRAI US 2001-277887P 20010322

IC ICM A61K031-74
ICS A01N025-10

IPCR C08G0083-00 [I,A]; C08G0083-00 [I,C]

EPC C08G083-00D

AB WO 2002077037 A2 UPAB: 20050528

NOVELTY - A biaryl monomer comprises at least a first aryl group and a second aryl group directly covalently bonded to the first aryl group.

DETAILED DESCRIPTION - A biaryl monomer (I) comprises at least a first aryl group and a second aryl group directly covalently bonded to the first aryl group. The first aryl group defines a plane. The second aryl group has two functional substituent. The first and second functional substituents are bonded to the second aryl group such that the first and second functional substituents are oriented on opposite sides of the plane defined by the first aryl group. The first aryl group has first and second branching substituent, each adapted for bonding to another monomer unit, and at least one of the first and second aryl groups has a third branching substituent adapted for bonding to a third monomer unit.

INDEPENDENT CLAIMS are also included for:

(1) a dendritic polymer comprising at least one unit of formula (I);

(2) a globular dendritic polymer (II) having an external surface and an interior surface comprising several units of (I), where:

(a) the first substituent has an affinity for a solvent having a first solvent property and the second substituent has an affinity for a solvent having a second solvent property;

(b) the first substituent substantially more hydrophilic than the second substituent in solution having a first pH value, and the second substituent is substantially more hydrophilic than the first substituent in a solution having a second pH value; and

(c) the first substituent of the second aryl group is oriented on the exterior surface of the polymer in a solution having the first pH value and the polymer inverts in a solution having the second pH value;

(3) a globular dendritic polymer (III) having the external surface and the interior surface comprising several units of (I), where:

(a) the first and second substituent have hydrophilic properties at selected pH values;

(b) the first substituent is substantially more hydrophilic than the second substituent in solution having a first pH value and the second substituent is substantially more hydrophilic than the first substituent in a solution having a second pH value;

(c) the first substituent of the second aryl group is oriented on the exterior surface of the polymer in a solution having the first pH value and the polymer inverts in a solution having the second pH value; and

(d) when the first and second substituent has an affinity for a solvent having a first and a second solvent property selectively, the first substituent is oriented to the external surface of the polymer in a solvent having the first solvent property and the polymer inverts in a solvent having the second solvent property;

(4) delivering an anti-tumor drug to a tumor involving:

(a) binding or encapsulating the anti-tumor drug or prodrug in the interior region of the dendritic polymer in an aqueous solution having a pH greater than 7 to form a polymer-drug conjugate;

(b) preparing a solution of the polymer-drug conjugate in a carrier having a pH of greater than 7; and

(c) administering the solution of the polymer-drug conjugate to a patient having a tumor so as to contact the conjugate with the tumor to release the drug or prodrug into the tumor; and

(5) encapsulating a solute involving:

(a) contacting a solute in an aqueous solution with the dendritic polymer in a solution having a first solvent parameter value; and

(b) adjusting the solvent parameter of the solution to a second solvent parameter value to form a polymer-encapsulated solute, where the first substituent of the second aryl group of the polymer has the binding affinity for the solute.

A1, A2 = phenyl or naphthyl;

X1, X2, Y1, Y2 = T or T';

T = OH, O, NHR1, NR1, SH, S, C(=O)OH, C(=O)O, C(=O)Z2, C(=O), SO3H, SO2Z2 or SO2;

T' = E1L1, E2L2, P(L2)2, E3R3 or E4R4;

D = C(O) or C(R1)(R2);

Z = OH, O, NHR1, NR1-, SH, S, a covalent bond, Cl, Br, I or OSO2-R5;

Z2 = Cl, Br, I or OSO2R5;

E1 = CH2 or CF2;

E2 = NR6, O, S, N(R6)C(=O), OC(=O) or SC(=O);

E3 = CHR7, CF2 or CFR7;

E4 = NR6, O, S, N(R6)C(=O), OC(=O) or SC(=O);

L1 = H, 1-20C alkyl, or G;

L2 = 4-20C alkyl or G;

G = phenyl, 1-20C alkyl-substituted phenyl, benzyl, diphenylphosphine-substituted 1-20C alkyl, 1-20C perfluoroalkyl or 1-20C perfluoroalkyl-substituted phenyl;

R1, R2 = H or 1-20C alkyl;

R3 = OH, NH2, C(=O)OH, -SO3H or PO3R7H;

R4 = 1-10C alkyl (substituted by carboxylic acid, amino, OH, sulfonic acid, phosphinic acid, phosphonic acid, nitrogen-heterocycle or trialkylammonium), H, (CH2CH2O)x-R8, (CH2CH2O)x-CH2CH2-NR9R10, (CH2CH2O)x-C(=O)NR9R10, nitrogen-heterocycle, amino acid, polypeptide, nucleic acid, polynucleic acid, biotin, polysaccharide, or sugar;

R5 = 1-20C alkyl, (methyl)phenyl or CF3;

R6 = H, 1-20C alkyl or 1-20C perfluoroalkyl;
R7-R10 = H or 1-3C alkyl;
x = 0-20;
provided that
(1) when both X1 and X2 = T, then Y1 and Y2 = T' (preferably one of Y1 and Y2 = either E1L1, E2L2 or P(L2)2; or E3R3 or E4R4);
(2) when both Y1 and Y2 = T, then X1 and X2 = T' (preferably one of X1 = and X2 = either E1L1, E2L2 or P(L2)2; or E3R3 or E4R4);
(3) when A1 = phenyl, then A2 is in the 1 position of the phenyl ring, X1 is in the 2 or 3 position of the phenyl ring, and X2 is in the 5 or 6 position of the phenyl ring;
(4) when A1 = naphthyl, then A2 is in the 1 position of the naphthyl ring, X1 is in the 2 or 3 position of the naphthyl ring, and X2 is in the 5 or 6 position of the naphthyl ring;
(5) when A2 = phenyl, then A1 is in the 1 position of the phenyl ring, Y1 is in the 2 or 3 position of the phenyl ring, and Y2 is in the 5 or 6 position of the phenyl ring;
(6) when A2 = naphthyl, then A1 is in the 1 or 8 position of the naphthyl ring, Y1 is in the 2 or 3 position of the naphthyl ring, and Y2 is in the 6 or 7 position of the naphthyl ring;
(7) when one of X1 and X2 = E3R3 or E4R4, one of X1 and X2 = E1L1, E2L2 or P(L2)2 and Y1 and Y2 = T.

USE - For preparation of dendritic polymers (e.g. dendrons), useful for encapsulation of pharmaceutical and agrochemical active agents; as a phase transfer catalyst in a fluorocarbon solvent; and for pH controlled encapsulation and release of pharmaceutical agents; for promoting cell-cell adhesion in a biological tissue (claimed). Also useful as agents for targeted delivery of pharmaceuticals; for encapsulation and controlled release of drugs, agrochemicals and other active agents; as solubilizing agents; as cell-cell adhesion agents in tissue engineering; as carriers for fluorescent imaging agents and demulsifiers; and as excipients for preparation of nanoparticles.

ADVANTAGE - The biaryl monomer unit provides a globular dendritic material in which the functionality of the interior and exterior surfaces of the globular dendrimer can be controlled and manipulated in a predictable fashion.

TECH ORGANIC CHEMISTRY - Preferred Components: The first and second aryl groups are phenyl or naphthyl groups. The first and the second functional substituent are a hydrophilic and hydrophobic substituent respectively. When the first aryl group is a first phenyl group, the second aryl group is bound to the 1 position of the first phenyl and the first branching substituent is bound to the 2 or 3 position of the first phenyl groups and the second branching substituent is bound to the 5 or 6 position of the first phenyl group. When the second aryl group is a second phenyl group, the first functional substituent is bound to the 2 or 3 position of the second phenyl group and the second functional substituent is bound to the 5 or 6 position of the second phenyl group. When the second aryl group is a naphthyl group, the first functional substituent is bound to the 2 or 3 position of the naphthyl group and the second functional substituent is bound to the 6 or 7 position of the naphthyl group. When the first aryl group is a first naphthyl group, the second aryl group is bound to the 1 position of the first naphthyl and the first branching substituent is bound to the 2 or 3 position of the first naphthyl groups and the second branching substituent is bound to the 6 or 7 position of the first naphthyl group.

PHARMACEUTICALS - Preferred Formulation: When the dendritic polymer is used for the encapsulation of pharmaceutical and agrochemical active agent and for pH controlled encapsulation and release of pharmaceutical active agent, the first functional substituents are oligomeric polyoxyethylene groups, carboxylic acids or acidic or neutral polypeptides. The second functional substituent is amino or nitrogen-heterocyclic functional group selected from primary, secondary or tertiary amino, amino-substituted 1-10C alkyl, amino alkyl, nitrogen-heterocycle, nitrogen-heterocycle-substituted 1-10C alkyl, basic amino acids or

basic peptides. When the dendritic polymer is used as a phase transfer catalyst in a fluorocarbon solvent, the first functional substituents are 1-20C perfluoroalkyl-optionally substituted phenyl and the second functional substituent is hydrophobic or hydrophilic substituent. When the dendritic polymer is used for promoting cell-cell adhesion in a biological tissue, the first and second functional substituents are tripeptide of formula Arg-Gly-Asp (RGD), the tetrapeptide of formula Gly-Arg-Gly-Asp (GRGD) or pentapeptide of formula Gly-Arg-Gly-Asp-Ser (GRGDS). In globular dendritic polymer, the second substituent comprises a basic functional group having a pKb of 3-8 (preferably 5-6.7) and a first pH of at least 0.5 greater than a numerical value which is at least 1 greater than 3 (preferably 7.4).

POLYMERS - Preferred Method: The encapsulation further involves separating the polymer-encapsulated solute from the solution by a size dependent separation method or precipitation. The first and the second solvent parameter in the encapsulation method are first and second pH respectively. The first and the second solvent parameter in the globular dendritic polymer are hydrophobicity, hydrophilicity, solvent polarity, pH and ionic strength.

Preferred Components: The dendritic polymer is e.g. a dendron of formula (XVI), (XVII) or (XVIII) and other dendrons and dendrimers derived from (XVI), (XVII) or (XVIII).

D = C(O) or CH2 (preferably CH2);
Lx, Ly = 4-20C alkyl or G (preferably (CH2CH2O)x'-CH3 or carboxylic acid-substituted 1-10C alkyl);
x' = x (preferably 1-20);
Lw, Lz = 4-20C alkyl or G;
Gw, Gz = R4;
Gx, Gy = R4 (preferably 1-20C alkyl);
T1, T2 = H, 1-20C alkyl or G (preferably 3-OLx',5-OGx')-benzyl;
Z' = OH, NHR1, SH, Cl, Br, I or OSO2-R5 (preferably OH or Br); and
R11, R12 = R4, G or 1-20C alkyl.

ABEX EXAMPLE - 2'-Butoxy-6'-(2-(2-(2-(2-hydroxyethoxy)ethoxy)-ethoxy)ethoxy)-4'-hydroxymethylbiphenyl-3,5-diol (0.0105 mmol) and 3-butyloxy-5-triethylenoxy-benzyl bromide (0.021 mmol) in tetrahydrofuran (THF) were heated at reflux in presence of potassium carbonate (10-15 equivalents) and 18-crown-6 ether (10-15 equivalents) followed by stirring under nitrogen for 36 hours. The mixture was cooled to room temperature and evaporated under reduced pressure. The residue was treated with water and extracted with EtOAc. Combined organics were dried over MgSO4 and concentrated. Purification by silica gel chromatography (eluting with EtOAc/1,4-dioxane; 9/1) gave a dendron of formula (XX; TEG = triethylene glycol) (51 % yield).

FS CPI

MC CPI: A05-K00K; B04-C02; B04-C03E; B04-E01; B04-N04; B07-A02; B10-A07; B10-A17; C04-C02; C04-C03E; C04-E01; C04-N04; C07-A02; C10-A07; C10-A17

L144 ANSWER 50 OF 50 WPIX COPYRIGHT 2010 THOMSON REUTERS on STN

AN 2002-088848 [200212] WPIX Full-text

CR 1988-063919; 1988-063920; 1988-063921; 1994-263231; 1994-264053; 1995-336721; 1996-299811; 1998-158344; 2001-210203

DNC C2002-027265 [200212]

TI Dense star polymer conjugate useful as a diagnostic agent comprises at least one dense star polymer associated with at least one unit of dye

DC A26; A96; B07; C07; G02

IN CHENG R C; FAZIO M J; HEDSTRAND D M; KAPLAN D A; KRUPER W J; TOMALIA D A; TOMLINSON I A; WILSON L R

PA (DOWC-C) DOW CHEM CO

CYC 1

PI US 6312679 B1 20011106 (200212)* EN 43[11]
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ADT US 6312679 B1 CIP of US 1986-897455 19860818; US 6312679 B1 CIP of US 1987-87266 19870818; US 6312679 B1 CIP of US 1989-386049 19890726; US 6312679 B1 CIP of US 1991-654851 19910213; US 6312679 B1 US 1993-36644 19930324
FDT US 6312679 B1 CIP of US 5338532 A
PRAI US 1993-36644 19930324
US 1986-897455 19860818
US 1987-87266 19870818
US 1989-386049 19890726
US 1991-654851 19910213
IPCR A01N0025-10 [I,A]; A01N0025-10 [I,C]; A61K0047-48 [I,A]; A61K0047-48 [I,C]; C07C0211-00 [I,C]; C07C0211-29 [I,A]; C07C0233-00 [I,C]; C07C0233-11 [I,A]; C07C0237-00 [I,C]; C07C0237-20 [I,A]; C08G0083-00 [I,A]; C08G0083-00 [I,C]; C08L0101-00 [I,A]; C08L0101-00 [I,C]; C12N0015-87 [I,A]; C12N0015-87 [I,C]
EPC A01N0025-10; A61K0047-48K6; A61K0047-48T4K2; A61K0047-48W18; C07C0211-29; C07C0233-11; C07C0237-20; C08G0083-00D; C08L0101-00B; C12N0015-87
ICO Y01N0002:00
NCL NCLM 424/078.080
NCLS 106/004.000; 106/031.130; 106/031.150; 424/001.110; 424/001.330; 424/001.530; 424/009.300; 424/078.170; 424/401.000; 424/405.000; 424/DIG.016; 521/025.000; 521/028.000; 523/105.000; 525/417.000; 528/363.000

AB US 6312679 B1 UPAB: 20080523
NOVELTY - A dense star polymer conjugate comprises at least one dense star polymer associated with at least one unit of a dye.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for the following: A) a formulation comprising the conjugate and at least one diluent or carrier; B) a solution (S1) of a dendrimer colored with a dye covalently attached to it; and C) an aqueous ink composition comprising (S1).

USE - As a diagnostic or therapeutic agent (claimed) for a variety of in vitro or in vivo diagnostic applications such as radioimmunoassays, electron microscopy, enzyme linked immunosorbent assays, nuclear magnetic resonance spectroscopy, contrast imaging, and immunoscintography in analytical application, in therapeutic application as a carrier of antibiotics, radionuclides, drugs, or other agents suitable for use in the diagnostic treatment of diseases (e.g. cancer, autoimmune disease, central nervous system disorders, infectious diseases, and cardiac disorders); in biological control applications as a means of delivering pesticides (e.g. herbicides, fungicides, repellant, attractant, antimicrobials, or other toxins); as a starting material for making other useful agents; and as a carrier such as dye suitable for printing and reprography.

ADVANTAGE - The use of starburst conjugates as carriers for immunopotentiating agents avoids the disadvantage of ambiguity in capacity and structure associated with conventionally known or synthetic polymer conjugates used to give a macromolecular structure to the antigen-carrier. Use of the starburst dendrimers as carriers for immuno-potentiating agent allows for control of size, shape and surface composition of the conjugate. These option allows optimization of antigen presentation to an organism, thus resulting in antibodies having greater selectivity and higher affinity than the use of conventional adjuvants.

TECH POLYMERS - Preferred Components: The dense star polymer is a radially symmetrical dendrimer, ester terminated polyamidoamine, polyethyleneimine or polyether. The polyethyleneimine has a methylene carboxylate surface, an acetate surface or a surface of a polyamidoamine. The dendrimer contains discontinuities. The dense star polymer has its surface modified with a functional group. The dendrimer is of formula (I) or (II).
(Core-1) = an initiator core compound in which the number of terminal groups per dendritic branch is of formula NrG/2;
G = the number of generations;
Nr = the repeating unit multiplicity (preferably at least 2);

Nc = the valency of the core compound;
Terminal moiety = number of terminal moieties per dendrimer of formula (NcNrG/2);
Repeat Unit = a valency or functionality of Nr+1;
i = 1 to t-1;
(Core-2) = a compound of formula T'(Zc)Nc;
T' = core;
Zc = the functional groups bonded to T';
Repeat unit-1 = XiYi(Zi)N-i;
Terminal unit-1 = XtYt(Zt)Nt;
t = terminal generation;
pi = a function obtained by formula (T = (N1)(N2)(N3).....(Ni-2)(Ni-1)) and is the number of repeat units XiYi(Zi)Ni, comprising the ith generation of one dendritic branch;
T = a group of formula (III).
when i is 1, then at n = 1, T = 1; Xt, Yt, Zt and Nt may be the same or different from Xi, Yi, Zi and Ni except that there is no succeeding generation connected to the Zt groups and Nt may be less than two. The dense star polymer conjugate is of the formula (P')x(M)y.
P' = a dendrimer;
x = at least1 (preferably 1);
y = at least 1 (preferably at least 2);
M = a unit of a dye.
The molar ratio of any ionic M - P' is 0.1-1000:1. The dendrimer is a first, second or third generation dendrimer (preferably microparticle of the first generation with an average diameter of 10.4 Angstrom , and with 3 terminal amino groups, or microparticle of the third generation with an average diameter of 22 Angstrom , and with 12 terminal amino groups). The dense star polymer has at least one core branch emanating from a core. The branch has at least one terminal group provided that (1) the ratio of terminal groups to the core branches is at least 2, (2) the density of terminal groups per unit volume in the polymer is at least 1.5 times that of an extended conventional star polymer having similar core, monomeric moieties, a comparable molecular weight and number of core branches, each of such branches of the extended conventional star polymer contain only one terminal group, and (3) a molecular volume that is not more than 80% of the molecular volume of the extended conventional star polymer as determined by dimensional studies using scaled Corey-Pauling molecular models, and has regular dendritic branching, attached to or linked to the surface of the dense star polymer or encapsulated within the interior of the dense star polymer by covalent bonding, hydrogen bonding, adsorption, absorption, metallic bonding, Vander Walls forces, ionic bonding, coulombic forces, hydrophobic forces and/or hydrophilic forces provided that the dye moiety maintains its effectiveness in the conjugate. The polyamidoamine is a sodium propionate terminated sixth generation polyamidoamine complexed with Fe+3 ions, an ester terminated 2.5 generation polyamidoamine complexed with Rh+3 ions, an ester terminated 3.5 generation polyamidoamine complexed with Pd+2 ions, an amine terminated 9 generation polyamidoamine with fluorescein encapsulated, or an amine terminated 4 generation polyamidoamine covalently bonded to dansyl groups. The polyethyleneimine is an amine terminated 2 generation polyethyleneimine ionically or covalently bonded to fluorescein, or an amine terminated 3 generation polyethyleneimine covalently bonded to dansyl groups via aminoethyl linkages derived from an aziridine moiety. Preferred Formulation: The formulation further comprises other active ingredients.
PHARMACEUTICALS - The dye is a pharmaceutical material.
ABEX ADMINISTRATION - The conjugate containing the pharmaceutical material is administered at or near a targeted locus.

EXAMPLE - 4-Isothiocyanatophenyl methylenecarboxylate terminated third generation starburst polyethyleneimine (4 mg) was mixed with 3mM indium chloride (200 mul). An aliquot (20 mul) of the solution was then spiked with radioactive indium-111 chloride and the pH adjusted to 9 by addition of 1N NaOH (30 mul) and 0.1N HCl (10 mul). The indium chelate was mixed with CC-49 (whole antibody IgG) (150 mul), in 50mM HEPES buffer (10 mg/ml) at pH 9.5. After 18 hours at room temperature the antibody was recovered by HPLC; and UV detector at 254 nm and a radioactivity detector. The recovered antibody was concentrated on an Amicon membrane and exchanged into PBS buffer at pH 7.4. The recovered antibody had specific activity of 0.5 muci/100muq.

FS CPI

MC CPI: A10-E01; A12-W12; B04-B04C; B04-C03C; B04-C03D; B04-C03E; B04-G01; B05-A03; B06-A03; B10-A10; B11-C07A; B11-C08; B12-K04A; B12-K04B; B12-K04C; B14-A01; B14-A04; B14-B01; B14-F01; B14-G01; B14-G02D; B14-H01; B14-J01; C04-B04C; C04-C03C; C04-C03D; C04-C03E; C04-G01; C05-A03; C06-A03; C10-A10; C11-C07A; C11-C08; C12-K04A; C12-K04B; C12-K04C; C14-A01; C14-A04; C14-B01; C14-F01; C14-G01; C14-G02D; C14-H01; C14-J01; C14-V01; G02-A04B

FULL SEARCH HISTORY

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=> d his nofile

     (FILE 'HOME' ENTERED AT 11:16:01 ON 15 SEP 2010)

     FILE 'HCAPLUS' ENTERED AT 11:16:07 ON 15 SEP 2010
                  E US20070244296/PN
L1             1 SEA SPE=ON  ABB=ON  PLU=ON  US20070244296/PN
                  D ALL
                  E US20070298006 /PN
                  E US20070298006/PN
L2             1 SEA SPE=ON  ABB=ON  PLU=ON  US20070298006/PN
                  D ALL
                  D SCA L1
                  E DENDRITIC POLYMERS/CT 25
                  E E3+ALL
                  E DENDRIMERS/CT
                  E E3+ALL
L3        267045 SEA SPE=ON  ABB=ON  PLU=ON  DENDRIMERS+MAX/CT
                  D 10000 KWIC
L4        267045 SEA SPE=ON  ABB=ON  PLU=ON  DENDRIMERS+ALL/CT
                  D 100 KWIC
L5          5923 SEA SPE=ON  ABB=ON  PLU=ON  DENDRIMERS/CT
                  D 200 KWIC
                  D L1 AU
                  DEL SEL
                  SEL L1 AU
L6           441 SEA SPE=ON  ABB=ON  PLU=ON  ("HUANG, BAOHUA"/AU OR
                  "PULGAM, VEERA REDDY"/AU OR "SWANSON, DOUGLAS R."/AU
                  OR "TOMALIA, DONALD A."/AU)

     FILE 'ZCAPLUS' ENTERED AT 12:38:13 ON 15 SEP 2010
L7                QUE SPE=ON  ABB=ON  PLU=ON  HUANG B?/AU
L8                QUE SPE=ON  ABB=ON  PLU=ON  PULGAM V?/AU
L9                QUE SPE=ON  ABB=ON  PLU=ON  SWANSON D?/AU

     FILE 'HCAPLUS' ENTERED AT 12:40:03 ON 15 SEP 2010

     FILE 'ZCAPLUS' ENTERED AT 12:41:27 ON 15 SEP 2010
L10               QUE SPE=ON  ABB=ON  PLU=ON  TOMALIA D?/AU
L11               QUE SPE=ON  ABB=ON  PLU=ON  L7 AND L8 AND L9 AND L10
L12               QUE SPE=ON  ABB=ON  PLU=ON  L7 AND L10 AND L11

     FILE 'HCAPLUS' ENTERED AT 12:42:59 ON 15 SEP 2010
L13            6 SEA SPE=ON  ABB=ON  PLU=ON  L7 AND L8 AND L9 AND L10
                  D SCA
                  DEL SEL
                  SEL L2 AU
L14          497 SEA SPE=ON  ABB=ON  PLU=ON  ("CHAUHAN, ABHAY SINGH"/AU
                  OR "DEMATTEI, CORDELL R."/AU OR "HEINZELMANN, JOSEPH
                  R."/AU OR "HUANG, BAOHUA"/AU OR "PULGAM, VERRA
                  REDDY"/AU OR "REYNA, LORI A."/AU OR "SVENSON, SONKE"/AU
                   OR "SWANSON, DOUGLAS R."/AU OR "TOMALIA, DONALD
                  A."/AU OR "ZHURAVEL, MICHAEL A."/AU)
L15          499 SEA SPE=ON  ABB=ON  PLU=ON  L6 OR L14

     FILE 'WPIX' ENTERED AT 12:49:15 ON 15 SEP 2010
L16            6 SEA SPE=ON  ABB=ON  PLU=ON  L7 AND L8 AND L9 AND L10
                  D TRI 1-6
L17            6 SEA SPE=ON  ABB=ON  PLU=ON  L16 AND DENDR?/BI,ABEX
                  D KWIC
L18            1 SEA SPE=ON  ABB=ON  PLU=ON  US20070244296/PN
                  D TRI
L19        11112 SEA SPE=ON  ABB=ON  PLU=ON  DENDR?/BI,ABEX
L20            1 SEA SPE=ON  ABB=ON  PLU=ON  L18 AND L19
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                D KWIC
L21           1 SEA SPE=ON  ABB=ON  PLU=ON  US20070298006/PN
                D TRI
L22           1 SEA SPE=ON  ABB=ON  PLU=ON  L21 AND L19
                D KWIC

     FILE 'ZCAPLUS' ENTERED AT 12:55:45 ON 15 SEP 2010
                E ALGOR/CT 25
                E ALGORY/CT 25
                E ALGORYTH/CT 25
                E ALGORITH/CT 25
                E ALGORI/CT 25
                E ALGORIT/CT 25
L23             QUE SPE=ON  ABB=ON  PLU=ON  ARITH? OR MATH? OR
                EQUATION? OR ALGORITHM? OR CALCULUS OR DIFFERENTIAL?
                OR INTEGRAL? OR FORMULA
L24             QUE SPE=ON  ABB=ON  PLU=ON  POLYM?

     FILE 'WPIX' ENTERED AT 13:00:13 ON 15 SEP 2010
L25           6 SEA SPE=ON  ABB=ON  PLU=ON  L17 AND (L23 OR L24)
                D KWIC
                D KWIC 2
                D KWIC 3
                D KWIC 4
L26        2775 SEA SPE=ON  ABB=ON  PLU=ON  L19 AND (L23 OR FRACT?/BI,A
                BEX)
                D 200 KWIC
                D QUE L23
L27             QUE SPE=ON  ABB=ON  PLU=ON  ARITH?/BI,ABEX OR MATH?/BI,
                ABEX OR EQUATION?/BI,ABEX OR ALGORITHM?/BI,ABEX OR
                CALCULUS/BI,ABEX OR DIFFERENTIAL?/BI,ABEX OR INTEGRAL?/
                BI,ABEX OR FRACTAL?/BI,ABEX
L28             QUE SPE=ON  ABB=ON  PLU=ON  THEOR?/BI,ABEX OR MODELLING
                ?/BI,ABEX
L29             QUE SPE=ON  ABB=ON  PLU=ON  ?DRENDR?/BI,ABEX OR
                STARBURST?/BI,ABEX OR STAR?/BI,ABEX(A)BURST?/BI,ABEX
                OR FRACTAL?/BI,ABEX
L30        1623 SEA SPE=ON  ABB=ON  PLU=ON  (L29 OR L19) AND L27
                D 100 KWIC

     FILE 'ZCAPLUS' ENTERED AT 13:18:02 ON 15 SEP 2010
L31             QUE SPE=ON  ABB=ON  PLU=ON  CORESHELL? OR CORE?(A)SHELL
                ?
L32             QUE SPE=ON  ABB=ON  PLU=ON  (EQ OR EQUATION? OR
                FORMULA)
L33             QUE SPE=ON  ABB=ON  PLU=ON  CORE OR SHELL OR INTERIOR
                OR SURFACE RO EXTERIOR
L34             QUE SPE=ON  ABB=ON  PLU=ON  CORE(2A)(MULTI? OR
                AMPLIF?)
L35             QUE SPE=ON  ABB=ON  PLU=ON  BRANCH?(2A)(MULTI? OR
                AMPLIF?)
L36             QUE SPE=ON  ABB=ON  PLU=ON  (EXTER? OR SURFACE)(2A)(MUL
                TI? OR AMPLIF?)
L37           0 SEA SPE=ON  ABB=ON  PLU=ON  B04-C03E/MC
L38           0 SEA SPE=ON  ABB=ON  PLU=ON  B04-C03E/MC

     FILE 'WPIX' ENTERED AT 13:26:17 ON 15 SEP 2010
L39         335 SEA SPE=ON  ABB=ON  PLU=ON  B04-C03E/MC
L40          26 SEA SPE=ON  ABB=ON  PLU=ON  C04-C03E/MC
L41           1 SEA SPE=ON  ABB=ON  PLU=ON  L39 AND L40 AND L30
                D KWIC
L42          22 SEA SPE=ON  ABB=ON  PLU=ON  L39 AND L40
L43          18 SEA SPE=ON  ABB=ON  PLU=ON  L42 AND L19
                D 10 KWIC
L44         339 SEA SPE=ON  ABB=ON  PLU=ON  L39 OR L40
L45        1224 SEA SPE=ON  ABB=ON  PLU=ON  H0351/PLE
L46         127 SEA SPE=ON  ABB=ON  PLU=ON  L44 AND L45
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L47          66 SEA SPE=ON  ABB=ON  PLU=ON  L46 AND L26
                D 30 KWIC
L48           5 SEA SPE=ON  ABB=ON  PLU=ON  L30 AND L31
                D TRI
                D KWIC
                D KWIC 2
                D KWIC 5
                D SCA AU
                D 1-5 AU
L49           6 SEA SPE=ON  ABB=ON  PLU=ON  L30 AND L32(S)(L31 OR L33
                OR (L34 OR L35 OR L36))
                D 3 KWIC
                D TRI 1-6
L50          59 SEA SPE=ON  ABB=ON  PLU=ON  L30 AND L28
                D 30 KWIC
L51           2 SEA SPE=ON  ABB=ON  PLU=ON  L50 AND L44
L52           3 SEA SPE=ON  ABB=ON  PLU=ON  L50 AND L45
L53           3 SEA SPE=ON  ABB=ON  PLU=ON  L51 OR L52
                D SCA
                D KWIC
                D KWIC 2
                D KWIC 3
L54           6 SEA SPE=ON  ABB=ON  PLU=ON  L39 AND L40 AND L45
L55          42 SEA SPE=ON  ABB=ON  PLU=ON  L26 AND L28
L56          59 SEA SPE=ON  ABB=ON  PLU=ON  L30 AND L28
L57          86 SEA SPE=ON  ABB=ON  PLU=ON  L55 OR L56
L58          45 SEA SPE=ON  ABB=ON  PLU=ON  L57 AND ((L31 OR L32 OR
                L33 OR L34 OR L35 OR L36))
                D 40 KWIC
L59          13 SEA SPE=ON  ABB=ON  PLU=ON  L58 AND CORE/BI,ABEX
                D 10 KWIC

     FILE 'ZCAPLUS' ENTERED AT 13:50:16 ON 15 SEP 2010
                E STARBURST POLYMERS/CT
                E STAR POLYMERS/CT
                E STARBURST/CT 25
                E STAR/CT 25
                E "POLYMERS, STAR"/CT
                E "POLYMERS, DENDR"/CT
                E "POLYMERS, HYPERBRANDC"/CT
                E HYPERBRANCH/CT 25
                D QUE L29

     FILE 'HCAPLUS' ENTERED AT 14:00:38 ON 15 SEP 2010

     FILE 'ZCAPLUS' ENTERED AT 14:03:33 ON 15 SEP 2010
L60              QUE SPE=ON  ABB=ON  PLU=ON  ?DENDR? OR STAR? OR
                 STARBURST? OR STAR?(A)BURST? OR FRACTAL? OR HYPERBRANCH
                 ? OR HYPER?(A)BRANCH?
L61              QUE SPE=ON  ABB=ON  PLU=ON  ARITH? OR MATH? OR
                 EQUATION? OR ALGORITHM? OR CALCULUS OR DIFFERENTIAL?
                 OR INTEGRAL? OR FUNC? OR DERIV?

     FILE 'HCAPLUS' ENTERED AT 14:04:11 ON 15 SEP 2010
L62      301289 SEA SPE=ON  ABB=ON  PLU=ON  L60 AND L61
L63              QUE SPE=ON  ABB=ON  PLU=ON  THEOR? OR MODELLING?
L64       38241 SEA SPE=ON  ABB=ON  PLU=ON  L62 AND L63
L65       14735 SEA SPE=ON  ABB=ON  PLU=ON  L64 AND ((L31 OR L32 OR
                L33 OR L34 OR L35 OR L36))
                D KWIC
L66          44 SEA SPE=ON  ABB=ON  PLU=ON  L64 AND (L32(3A)(L31 OR
                 (L33 OR L34 OR L35 OR L36)))
                D 40 KWIC
                D 30 KWIC
L67              QUE SPE=ON  ABB=ON  PLU=ON  L32(3A)(L31 OR (L33 OR L34
                OR L35 OR L36))
L68         137 SEA SPE=ON  ABB=ON  PLU=ON  L62 AND L67
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L69          44 SEA SPE=ON  ABB=ON  PLU=ON  L68 AND L63
L70          44 SEA SPE=ON  ABB=ON  PLU=ON  L69 OR L66
L71           0 SEA SPE=ON  ABB=ON  PLU=ON  L70 AND ((L3 OR L4 OR L5))

L72       11373 SEA SPE=ON  ABB=ON  PLU=ON  L62 AND ((L3 OR L4 OR L5))

L73           3 SEA SPE=ON  ABB=ON  PLU=ON  L72 AND L67
                D KWIC
                D QUE L67
L74         811 SEA SPE=ON  ABB=ON  PLU=ON  (L63 OR MODEL?)(3A)L31
                D 500 KWIC
                D QUE
L75          51 SEA SPE=ON  ABB=ON  PLU=ON  L74 AND L60
                D 25 KWIC
L76           6 SEA SPE=ON  ABB=ON  PLU=ON  L75 AND ((L3 OR L4 OR L5))

                D 5 KWIC
                D QUE L75
                D L1 CC
                D L2 CC
L77             QUE SPE=ON  ABB=ON  PLU=ON  35/SC,SX
L78             QUE SPE=ON  ABB=ON  PLU=ON  37/SC,SX
L79           7 SEA SPE=ON  ABB=ON  PLU=ON  L75 AND (L77 OR L76)
L80           7 SEA SPE=ON  ABB=ON  PLU=ON  L75 AND (L77 OR L78)
                D 7 KWIC
L81             QUE SPE=ON  ABB=ON  PLU=ON  PEHAM OR TPEGE OR TMPTGE
                OR PAMAM
L82         967 SEA SPE=ON  ABB=ON  PLU=ON  L72 AND L81
                D 900 KWIC
L83          42 SEA SPE=ON  ABB=ON  PLU=ON  L82 AND L32
                D 30 KWIC
L84             QUE SPE=ON  ABB=ON  PLU=ON  EQUATION OR EQ
L85          33 SEA SPE=ON  ABB=ON  PLU=ON  L83 AND L84
                D KWIC 15
L86        1462 SEA SPE=ON  ABB=ON  PLU=ON  ORNSTEIN(A)ZERNIKE
                D 1400 KWIC
L87             QUE SPE=ON  ABB=ON  PLU=ON  DIFFERENTIAL OR INTEGRAL
                OR DERIV?
L88         984 SEA SPE=ON  ABB=ON  PLU=ON  L86(3A)(L84 OR L87 OR L28
                OR MODEL?)
L89          42 SEA SPE=ON  ABB=ON  PLU=ON  L88 AND (L60 OR HIGH?(3A)BR
                ANCH?)
                D 10 KWIC
L90       41496 SEA SPE=ON  ABB=ON  PLU=ON  (L31 OR (L33 OR L34 OR L35
                OR L36))(3A)(L84 OR L87 OR L28 OR MODEL?)
L91        1028 SEA SPE=ON  ABB=ON  PLU=ON  L66 OR (L68 OR L69 OR L70)
                OR L73 OR (L74 OR L75 OR L76) OR L79 OR L80 OR L83 OR
                L85 OR L89
L92         940 SEA SPE=ON  ABB=ON  PLU=ON  L90 AND L91
                D 400 KWIC
L93          25 SEA SPE=ON  ABB=ON  PLU=ON  L92 AND ((L3 OR L4 OR L5))

                D 20 KWIC
L94           7 SEA SPE=ON  ABB=ON  PLU=ON  L92 AND ?DENDRI?
L95         180 SEA SPE=ON  ABB=ON  PLU=ON  L92 AND (L60 OR HIGH?(3A)BR
                ANCH?)
L96          15 SEA SPE=ON  ABB=ON  PLU=ON  L95 AND ?POLYM?
                D 10 KWIC
L97         275 SEA SPE=ON  ABB=ON  PLU=ON  L79 OR L80 OR L83 OR L85
                OR L89 OR (L93 OR L94 OR L95 OR L96)
L98           2 SEA SPE=ON  ABB=ON  PLU=ON  L97 AND ((L7 OR L8 OR L9)
                OR L15)
                D KWIC
                D KWIC 2
L99          20 SEA SPE=ON  ABB=ON  PLU=ON  L97 AND (L77 OR L78)
L100         34 SEA SPE=ON  ABB=ON  PLU=ON  L97 AND L29
L101         58 SEA SPE=ON  ABB=ON  PLU=ON  L96 OR (L98 OR L99 OR
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                L100)
L102          33 SEA SPE=ON  ABB=ON  PLU=ON  L101 AND ((L3 OR L4 OR L5)
                   OR DENDR?)
                   D 30 KWIC
L103          22 SEA SPE=ON  ABB=ON  PLU=ON  L102 AND L84
                   D 20 KWIC
L104           1 SEA SPE=ON  ABB=ON  PLU=ON  "D/D0 = EXP[-B(R/Ξ)
                   Δ]"
                   D KWIC
L105          22 SEA SPE=ON  ABB=ON  PLU=ON  L104 OR L103

     FILE 'PASCAL, RAPRA, JAPIO' ENTERED AT 14:52:05 ON 15 SEP 2010
L106      169635 SEA SPE=ON  ABB=ON  PLU=ON  L60 AND L61
L107          13 SEA SPE=ON  ABB=ON  PLU=ON  L106 AND L88
                   D SCA
L108         545 SEA SPE=ON  ABB=ON  PLU=ON  L106 AND L90
                   D KWIC 500
                   D QUE
L109          15 SEA SPE=ON  ABB=ON  PLU=ON  L108 AND (L34 OR L35)
                   D 10 KWIC
                   D QUE L109
L110          28 SEA SPE=ON  ABB=ON  PLU=ON  L107 OR L109
L111          28 SEA SPE=ON  ABB=ON  PLU=ON  L110 AND (L60 OR HIGH?(3N)
                   BRANCH?)
L112          28 SEA SPE=ON  ABB=ON  PLU=ON  L111 AND ((L31 OR L32 OR
                   L33 OR L34 OR L35 OR L36) OR L60 OR L61 OR MODEL? OR
                   L63 OR L81 OR L84)
                   D 20 KWIC
L113           9 SEA SPE=ON  ABB=ON  PLU=ON  L111 AND ?DENDR?
L114          28 SEA SPE=ON  ABB=ON  PLU=ON  L112 OR L113

     FILE 'HCAPLUS' ENTERED AT 15:16:29 ON 15 SEP 2010
L115              QUE SPE=ON  ABB=ON  PLU=ON  PY=<2005 NOT P/DT
L116              QUE SPE=ON  ABB=ON  PLU=ON  (PY=<2005 OR PRY=<2005 OR
                  AY=<2005 OR MY=<2005 OR REVIEW/DT) AND P/DT

     FILE 'PASCAL, RAPRA, JAPIO' ENTERED AT 15:17:03 ON 15 SEP 2010
L117          21 SEA SPE=ON  ABB=ON  PLU=ON  L114 AND (L115 OR L116)
                   SAV L117 CAI044MULTI/A

     FILE 'HCAPLUS' ENTERED AT 15:21:38 ON 15 SEP 2010
L118          11 SEA SPE=ON  ABB=ON  PLU=ON  L105 AND (L115 OR L116)
                   SAV TEMP L118 CAI044HCP/A

     FILE 'STNGUIDE' ENTERED AT 15:23:45 ON 15 SEP 2010

     FILE 'WPIX' ENTERED AT 15:24:28 ON 15 SEP 2010
L119         158 SEA SPE=ON  ABB=ON  PLU=ON  ((L47 OR L48 OR L49 OR L50
                   OR L51 OR L52 OR L53 OR L54 OR L55 OR L56 OR L57 OR
                   L58 OR L59))
L120         157 SEA SPE=ON  ABB=ON  PLU=ON  L119 AND (L60 OR HIGH?/BI,A
                   BEX(3A)BRANCH?/BI,ABEX)
L121           0 SEA SPE=ON  ABB=ON  PLU=ON  L120 AND L115
L122          99 SEA SPE=ON  ABB=ON  PLU=ON  L120 AND L116
L123          10 SEA SPE=ON  ABB=ON  PLU=ON  L122 AND L84
                   D KWIC
                   D TRI 1-10
                   D 5 KWIC
L124         160 SEA SPE=ON  ABB=ON  PLU=ON  L119 OR L25 OR (L20 OR L21
                   OR L22)
L125         176 SEA SPE=ON  ABB=ON  PLU=ON  L124 OR (L42 OR L43)
L126          95 SEA SPE=ON  ABB=ON  PLU=ON  L125 AND (L44 OR L45)
L127          94 SEA SPE=ON  ABB=ON  PLU=ON  L126 AND (L61 OR L19)
                   D 70 KWIC
L128          91 SEA SPE=ON  ABB=ON  PLU=ON  L127 AND (L60 OR HIGH?/BI,A
                   BEX(3A)BRANCH?/BI,ABEX)
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L129          57 SEA SPE=ON  ABB=ON  PLU=ON  L128 AND L61
                 D 50 KWIC
L130           2 SEA SPE=ON  ABB=ON  PLU=ON  L128 AND ((L88 OR L89 OR
                 L90))
                 D KWIC
                 D KWIC 2
L131          27 SEA SPE=ON  ABB=ON  PLU=ON  L129 AND CORE/BI,ABEX
                 D 20 KWIC
L132          37 SEA SPE=ON  ABB=ON  PLU=ON  L129 AND (L86 OR L87)
                 D 30 KWIC
L133           3 SEA SPE=ON  ABB=ON  PLU=ON  L129 AND L31
L134          28 SEA SPE=ON  ABB=ON  PLU=ON  L129 AND L33
L135           6 SEA SPE=ON  ABB=ON  PLU=ON  L129 AND (L34 OR L35)
L136           0 SEA SPE=ON  ABB=ON  PLU=ON  L129 AND L36
L137          48 SEA SPE=ON  ABB=ON  PLU=ON  (L130 OR L131 OR L132 OR
                 L133 OR L134 OR L135 OR L136)
L138           0 SEA SPE=ON  ABB=ON  PLU=ON  L137 AND L115
L139          20 SEA SPE=ON  ABB=ON  PLU=ON  L137 AND L116
L140          20 SEA SPE=ON  ABB=ON  PLU=ON  L138 OR L139
                 SAV TEMP L140 CAI044WPX/A
L141           5 SEA SPE=ON  ABB=ON  PLU=ON  L140 AND ((L7 OR L8 OR L9
                 OR L10 OR L11 OR L12 OR L13 OR L14 OR L15))
L142          20 SEA SPE=ON  ABB=ON  PLU=ON  L140 OR L141
                 SAV TEMP L142 CAI044WPX/A

     FILE 'PASCAL, RAPRA, JAPIO' ENTERED AT 16:01:10 ON 15 SEP 2010
L143           0 SEA SPE=ON  ABB=ON  PLU=ON  L117 AND ((L7 OR L8 OR L9
                 OR L10 OR L11 OR L12 OR L13 OR L14 OR L15))

     FILE 'STNGUIDE' ENTERED AT 16:02:42 ON 15 SEP 2010
                 D QUE L118
                 D QUE L117
                 D QUE L142

     FILE 'HCAPLUS, PASCAL, RAPRA, JAPIO, WPIX' ENTERED AT 16:03:47 ON
     15 SEP 2010
L144          50 DUP REM L118 L117 L142 (2 DUPLICATES REMOVED)
                      ANSWERS '1-11' FROM FILE HCAPLUS
                      ANSWERS '12-26' FROM FILE PASCAL
                      ANSWERS '27-29' FROM FILE RAPRA
                      ANSWER '30' FROM FILE JAPIO
                      ANSWERS '31-50' FROM FILE WPIX
                 D L144 1-11 IBIB ED ABS HITIND
                 D L144 12-30 IBIB AB HIT IND
                 D L144 31-50 FULL
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